104. During the First Plan period, the Animal Husbandry Research Institutes at Comilla and Peshawar, working under the direction of the Central Ministry of Agriculture, and the research facilities at the Animal Husbandry Colleges of Lahore and Mymensingh were expanded. The facilities fo research will now be enlarged, with the extension of existing laboratories a the research institutions, and the construction of new laboratories. A station for research on artificial insemination is being established at Karachi under the aegis of CENTO to come into operation early in the Second Plan period. In West Pakistan a section has been established within the Directorate of Animal Husbandry to study livestock production economics. A similar section will be established in East Pakistan.

Training of personnel

105. During the First Plan period, facilities were expanded in the two Colleges of Animal Husbandry for the training of stock assistants and animal husbandry graduates. Hostel and laboratory facilities were improved; additional lecture rooms were provided at the Lahore College of Animal Husbandry; and the Animal Husbandry College at Dacca was shifted to new premises near Mymensingh, where admissions rose to 250 students in 1959 from 140 students admitted in 1955.

106. The estimated requirements of various categories of staff required for implementing the programme included in the Second Plan are shown in Table 9.

TABLE 9

Requirements of animal husbandry staff, 1960-65

	East Pakistan	West Pakistan	Centre	Total
Graduates and post-graduates ...	230	550	125	905
Existing vacancies	12	168	—	180
Total ...	242	718	125	1,085
Stock assistants	110	530	125	765
Existing vacancies	...	13	...	13
Total ...	110	543	125	778

107. It is estimated that against these requirements, the existing colleges and schools will produce about 900 graduates and as many stock assistants after making some allowance for failures. Because demand for trained

personnel will continue to increase in future years, it is proposed to expand further the facilities at the existing colleges and schools during the Plan period. In addition, post-graduate courses will be started at the Colleges of Animal Husbandry, with refresher courses for field staff.

Development expenditure

108. Table 10 below gives the development expenditure allocated for the animal husbandry programme.

TABLE 10

Public sector development expenditure on animal husbandry, 1960-61 to 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Disease control	18·1	22·1	...	40·2
Breeding	0·9	25·2	...	26·1
Education and research	6·1	2·4	11·1	19·6
Dairying	14·9	5·4	4·6	24·9
Others	...	6·9	6·3	13·2
Total ...	40.0	62.0	22·0	124·0

Range management

109. West Pakistan has large areas of land which are either too arid or too steep and rocky for farming. Most of these areas are located in the Dera Ismail Khan, Bahawalpur, Khairpur, Hyderabad, Quetta and Kalat Divisions, and in parts of Peshawar and Rawalpindi Divisions. Due to the high intensity of grazing in these areas in the past, most of the lands have been practically denuded of their natural vegetation, and their livestock carrying capacity has been seriously impaired. As the supply of feed and fodder in other areas is also limited, the condition of livestock is generally unsatisfactory in most parts of the Province. Range management, therefore, assumes special importance in West Pakistan. It is not important in East Pakistan since rainfall is generally high, and farming and forestry constitute the main land uses in that Province. Livestock rearing is not generally a means of livelihood in East Pakistan.

110. The First Plan suggested that in conjunction with reconnaissance soil surveys of West Pakistan, a survey of potential areas for range development

should be carried out to locate surface and underground water points and range forage. The soil surveys of the type envisaged in the First Plan were not carried out for various reasons. A limited survey of the range lands was made in the Thal area, in Muzaffargarh and Bahawalpur districts, and in parts of the Quetta Division. A range management project was started at Yateabad in the Quetta Division in 1959; it is too early to assess its results. The responsibility for range development runs into many departments. The First Plan recommended that a Provincial range development board including the heads of various departments concerned, along with a small permanent staff, be created to develop detailed plans for range management and to supervise the implementation of such plans. This board was to determine over-all range development policies and set up other bodies to assist them in their work at the district level. This recommendation remained unimplemented, which accounts in part for lack of progress in the First Plan.

111. It is difficult to improve private or community-owned range lands because of the owner's lack of appreciation of the urgency of maintaining the vegetation in good condition. The Second Plan, therefore, proposes concentration on the development of state-owned range lands, where work can be started without delay and which can serve as demonstration areas for the villagers. The working of the range areas selected for development in different parts of the Province should include qualitative and quantitative improvement of forage and livestock, provision of supplementary and emergency feed, development of water places by installing open wells, tubewells, or windmills for pumping water, and disease prevention and control operations. Research to determine grazing capacity, ecological studies on range vegetation, and introduction of exotic plants of known grazing value should be carried out in five of the selected areas located at Nagarparker, Ran-Pathani, Cholistan, Jhelum and in the Kalat Division. A Provincial development board is still needed for coordinating the activities of departments concerned with range development, notably the departments of Agriculture, Animal Husbandry, Forestry, Soil Conservation, and Cooperatives. The board should prepare detailed working plans for the development of ranges, and should supervise the implementation of the plans through a nucleus range management staff.

112. A sum of Rs. 12 million is provided in the Plan for range management.

Forestry

113. Forests and forest products play a vital part in the economy of the country. They provide timber for construction, firewood for domestic use, and raw materials for a host of industries such as paper, matches, sports goods, plywood and hardboard, chemicals, pharmaceuticals, and rayon. In addition, they affect the climate, reduce soil erosion, regulate the flow of rivers, and provide unmatched opportunities for recreation. Some of these results can be valued in money; others cannot.

114. Despite denudation over the centuries, the country still has considerable forests, which cover about 8·7 million acres, or 3·7 per cent of the total land area. That this great national resource has not been exploited satisfactorily is evidenced by the scale of timber imports, which amounted to Rs. 20 million in 1958. Recent sharp rises in the prices of forest products indicate a widening gap between demand and effective supplies. The lack of firewood promotes burning of dung cakes which in turn deprives the soil of manure and affects its fertility. With the increased tempo of development and rising national income, the demand for wood for industrial use and for domestic consumption is likely to rise further. The Plan attempts to deal with problems of timber extraction and regeneration. It provides for augmentation of quantities of timber and fuel to meet the growing demand, while taking account of the protective value of standing forests, and of the danger to long-run supplies from over-cutting.

115. The main forests in West Pakistan lie in the northern areas, including the States of Amb, Chitral, Dir, and Swat. There are also dry hill forests in the Quetta and Kalat Divisions, and in the northwestern tribal areas. Plantation forests are located largely in the former Punjab, and are now being extended into the former province of Sind. The natural timber forests of West Pakistan are coniferous, lying in the hilly and mountainous regions where the growth rate is slow and regeneration in cut-over areas is not always successful. Large areas of West Pakistan have been completely denuded over the years ; luxuriant forests which once covered the lower Indus Basin are now non-existent. Broadly speaking, it is doubtful whether the present rate of extraction can be increased substantially without the danger of further reducing the forest area ; a forest inventory can provide a more definite answer. In the more settled areas of West Pakistan, trees continue to be cut excessively to meet timber and fuel requirements ; this further reduces the forest wealth.

116. In East Pakistan, the main forests are the evergreen and semi-evergreen forests of the Chittagong Hill Tracts and the tidal forests of the Sunderbans. Extensive unexploited deciduous forest resources are also found in the Chittagong Hill Tracts. Smaller forests are found in the Dacca, Mymensingh, and Sylhet districts. The possibilities of immediate increases in extraction in East Pakistan are considerable even on the basis of present limited information ; the chances of short-term economic returns from the accessible reserve areas appear to be equally favourable. Prospects of expanded afforestation and natural regeneration are promising; because of favourable climate conditions, forest growth is rapid, and natural regeneration is good.

General approach to forestry development

117. The main objectives of the forestry programme are increased extraction in East Pakistan, and afforestation in West Pakistan, with emphasis

on surveys to determine the forest resources of the States of Amb, Chitral, Dir, and Swat, which need to be brought under the control of the Forest Department.

118. In the short run, the East Pakistan Government expect the newly established Forest Industries Development Corporation to increase the extraction of forest products very substantially in the Chittagong Hill Tracts. The Corporation will be responsible also for the development of a number of forest industries. The responsibility for the regeneration of areas from which timber is extracted by the Corporation will remain with the Forest Department, and the extraction programme of the Corporation will be determined in close collaboration with that Department, which will mark the trees to be felled. The long run programme for East Pakistan will include expansion of the forests through control of *jhooming* (shifting cultivation) in the Chittagong Hill Tracts, and re-afforestation of waste and degraded forest lands. *Jhooming* is a primitive method of agriculture which involves widespread destruction of forest areas ; it can be replaced by settled cultivation through a gradual process of social evolution. Because in many areas sufficient land for settled subsistence farming may not be available to absorb the former *jhoomers*, replacements may have to take the forms of horticulture, cash crops grown on small holdings, or livestock production based on improved grasses and fodder crops. Afforestation programmes throughout the Province must be related to prospective demand for the various forest products. Raw materials for the new industries must be produced through increases in soft-wood plantations and through the introduction of rubber, *catechu*, *kumbhi* and other plants of economic interest.

119. The afforestation programme in West Pakistan will be executed in natural geographical regions, primarily through watershed management, and related to other development activities such as irrigation, soil conservation, and range management. Because of the difficulties of rapid expansion of the natural forests in West Pakistan, certain parts of the areas newly irrigated by barrages have been set apart for planting forests to increase firewood and timber production. Extension of irrigated plantations is also being undertaken in the former Punjab and Sind Provinces.

Surveys

120. There are two types of survey operations which are essential to the forestry programme. The first is the multi-purpose soil and water survey which is advocated elsewhere in the Plan programmes relating to crop husbandry and water development. Afforestation plans should be related to soil and water data, particularly in areas where new forest crops and species are to be tried. The second survey of immediate importance to the forestry programme concerns the inventory of forest resources which is being undertaken in both East and West Pakistan. The extent and composition of the country's forest reserves are not fully known. The inventory preparation in both Provinces will be accelerated during the Plan period. First attention

will be given to the more accessible and economically important areas. In East Pakistan these are mainly government reserve forest areas; in West Pakistan such areas lie in Amb, Chitral, Dir, and Swat. After the inventory of the reserve areas has been completed, the unclassified forest land will be surveyed to determine what further areas should be reserved, and what areas be left to private development.

121. The present staff of the Forest Department in East Pakistan will, if necessary, be assisted in completing the survey by consultants from abroad, especially in interpreting the aerial maps and preparing the inventories, collecting data on growth rates, and estimating regeneration prospects. In West Pakistan the aerial photography carried out some years ago covered much of the forest area, but the Forest Department has neither adequate trained staff nor equipment to interpret the mosaics; both will be provided during the Plan period. In addition, the West Pakistan Water and Power Development Authority is carrying out aerial photography of some of the areas not already covered to prepare a programme for watershed management. The use of the aerial photographs, in conjunction with field checks, is essential for the rapid preparation of an inventory. A watershed management survey will be made to ascertain present land use as well as the human and livestock population of the area. It will include classification of land by slopes, and the mapping of range lands and scrub and coniferous forests according to conditions of growth. Based on this survey, a detailed conservation and afforestation programme will be prepared. The treatment of the Indus and the Jhelum watersheds is included in the Plan. As the inventory is completed for particular areas, working plans for both East and West Pakistan will be developed for extraction, utilization, and regeneration or afforestation; such plans already exist for some of the accessible reserve areas.

Extraction and use

122. The First Plan provided for an increase in timber production of about 26 per cent. Performance has been below expectations, and an increase of only about 13 per cent was achieved. The chief reason was slow progress in the major timber extraction scheme in the Chittagong Hill Tracts, where against a target of 40,000 tons of timber a year, only 10,000 tons a year were extracted. This was due to delays in providing machinery and saw mills and in building adequate access roads, and also to the failure to complete the Kaptai dam on schedule, which meant limitation of floating capacity of the Karnafuli river above the dam. In West Pakistan, working plans for the extraction of timber from the forests of Amb, Chitral, Dir, Swat and other areas of Frontier Regions were not prepared because of various administrative difficulties, nor was the exploitation of the Thatta tidal forests undertaken for the same reason and also because of lack of river craft.

123. For the Second Plan period, the annual target of timber extraction from the Chittagong Hill Tracts will be increased to 45,000 tons by 1964-65.

The second and equally important area is the Sunderbans, from which it is proposed to extract about 55,000 tons of timber per annum, against limited extraction at the present time. The total production of timber from both these areas should reach about 100,000 tons a year by 1965. To facilitate the work of extraction in East Pakistan, the programme includes also the provision of 1,000 miles of forest roads, timber extraction machinery and equipment, and accommodation for staff.

124. In West Pakistan, 150 miles of roads will be constructed in the hill country so as to reduce exploitation costs. The extraction programme includes preparation of working plans for the forest resources of the northern areas of West Pakistan. These areas have been little exploited and not much is known about them. During the Plan period, inventory surveys will be conducted, and working plans for exploitation prepared. Any extraction programme in these areas will do no more than maintain output at its present levels, because the total forest area is limited, extraction has already gone far, and regeneration is slow. Substantial increases in fuel wood production will, however, result from the exploitation of the Thatta tidal forests.

125. The efficient use of forest resources requires that all extracted timber should be seasoned, and all non-durable timber treated with preservatives ; construction timber, telegraph poles, and railway sleepers should be preserved by creosoting. These treatments will prolong the life of available supplies and will reduce the demand for replacement in future years. In West Pakistan two seasoning kilns, one preservation and creosoting plant, and two preservation and treatment plants will be built in the public sector during the Plan period. The East Pakistan Forest Industries Development Corporation will be responsible for establishing saw mills and creosoting plants, and for the commercial development of pre-fabricated structural materials, box-wood, wood oil, honey, and tanning materials. Two timber preservation plants are already in operation in East Pakistan, and a third will begin operation soon. These schemes should be executed in participation with private enterprise. If private capital is not forthcoming, however, the Forest Industries Development Corporation will finance the industries directly.

Afforestation and regeneration

126. As indicated above, an extraction programme must be supported by afforestation or natural regeneration to ensure optimum output over a period of time. In West Pakistan, where large areas previously forested are now completely or partially denuded, the afforestation programme is especially important, because natural regeneration is insufficient in most of the hilly and mountainous areas of the Province. Afforestation of the watershed around Warsak, and of the Indus above the proposed Turbela dam should be pushed ahead to avoid premature silting of the water storage basins. The afforestation programme in the First Plan included schemes for areas where the rainfall was over 30 inches per year, and the lands were unsuitable

for crop cultivation. More than 190,000 acres were afforested, and about 170,000 acres regenerated during the first three years of the First Plan period. During the Second Plan period, afforestation will again be concentrated in these areas, covering almost 200,000 acres. In addition, 150,000 acres will be regenerated.

127. Because of the limited possibilities of increasing extraction in the natural forests of West Pakistan, it is essential to put a certain proportion of the newly irrigated areas under forests, particularly for firewood production. The programme includes the afforestation of about 110,000 acres of irrigated land during the Plan period. Permanent nurseries covering 2,000 acres will be developed to produce *shisham* seedlings and ornamental species.

128. There are ample opportunities for increasing forest resources by planting trees along roads, canals, and rivers. During the first three years of the First Plan period, 80 miles of roads and 1,800 miles of canal banks were planted with trees. The Second Plan proposes that trees should be planted along approximately 2,000 miles of roads and canals in West Pakistan. The Departments of Irrigation and Communications and Buildings should act in close cooperation with the Forest Department to implement this proposal. There are large areas of *bela* (riverine) and *rakh* (range) lands under the control of the Forest and Revenue Departments. These lands need to be surveyed to determine their possible uses; areas which cannot be brought under the plough should be developed as forests by the Forest Department. Similarly, the *guzara* (community) forests of the Murree Hills need to be developed; the recommendation of the Murree Hills Commission for placing them under proper management should be implemented.

Farm forestry

129. The planting of trees by the farmers within or along the boundaries of their fields will be encouraged, especially in the newly colonized areas. Four trees per acre should be planted by each farmer as a condition of allotment of land by the Government. In settled areas the programme should be promoted through campaigns organized by the Village AID workers and the institutions of Basic Democracies. This programme has great possibilities. The Forest Department will supply seeds and seedlings from nurseries established for the purpose. The Plan provides for ten nursery units in non-forest districts.

130. Two methods will be used to overcome the paucity of forest areas in East Pakistan. First, private landowners will be encouraged to plant trees around their homesteads and on unculturable village waste land. Second, the Government will undertake the afforestation of 18,000 acres of unculturable waste land in compact blocks and deteriorated forested areas, in addition to planting about 30,000 acres with industrial hardwood and semi-hardwood species, such as teak, *sal*, *jaral*, *semul*, *kadam* and *patali*.

Scientific forest management will be introduced over approximately 100,000 acres of privately owned forest lands in Sylhet District. Protection of forest lands, and the survey, demarcation and maintenance of forest boundaries will receive special attention. An effort will be made to increase firewood plantation by regeneration in about 3,000 acres of government forests. Afforestation will be used in reclaiming waste lands unfit for farming ; 25,000 acres of these lands will be planted with *sal.*

Afforestation of trees of special economic importance

131. Little progress was made on specialised afforestation in the First Plan period. An enlarged programme will be undertaken in West Pakistan in the Second Plan period with varieties giving promise of high economic returns. These plantations will include 2,400 acres of walnut trees in the Abbottabad Circle, 1,000 acres of *tendu*, 3,500 acres of *catechu*, 3,000 acres of poplar, and similar plantings of eucalyptus, mulberry, *hydia*, *travia*, and *gmednia* in the Kotri and Sukkur barrage areas. In addition, *lac* cultivation will be encouraged, and the area under medicinal plants will be expanded. Plants of economic value will also be grown in East Pakistan on an aggregate area of nearly 10,000 acres, *kumbhi* on 7,000 acres, *tendu* and *catechu* on 1,000 acres each, rubber on 700 acres, and *rauwolfia serpentina* on 300 acres.

132. Bee keeping, *lac* cultivation, and sericulture will be developed as subsidiary forest industries in both Provinces.

Research

133. Forestry research is at present being undertaken by the Central as well as Provincial Governments. The Food and Agriculture Council of Pakistan supports the research programme, which includes the production of seeds and medicinal plants, the establishment of a research sub-station for medicinal plants and shrubs in East Pakistan, and the establishment of shelter belts to study their effects on the yield of agricultural crops. The programme for both the Provinces also includes research on silvicultural, botanical, ecological, entomological and chemical problems and on forest plants, seed treatment, and dry plantation techniques. A pilot project will be carried out in East Pakistan to investigate the economic possibilities of growing cashew nuts, *mahua*, and *agar*. *Catechu* extract will be tested for the production of *katha* as an ingredient for betel, and its bark as a tanning material. Research on the use of forest products will be expanded. This will include studies of the structural characteristics of various woods, the suitability of indigenous timber for various industrial uses, plywood, chipboard, and fibre board manufacture. Research will also be undertaken on various techniques of wood preservation. For these programmes, provision has been made to develop and expand facilities at the existing research institutions and stations, especially at the Pakistan Forest College and Research Institute, Peshawar.

Education and training

134. The Forest Departments are under-staffed, and the development programme will require substantially larger number of technicians at all levels. During the First Plan period, the building of the Pakistan Forest College and Research Institute at Peshawar was undertaken ; it will be completed during the Second Plan period. The College will be able to admit a larger number of officers and rangers for training. In addition, a new school for the training of foresters was built at Bahawalpur in West Pakistan, and the capacity of the existing school at Sylhet in East Pakistan was expanded.

135. It is estimated that in the Second Plan period the West Pakistan programme will require an additional 36 officers, 85 rangers and 180 foresters. The East Pakistan Forest Department will require about 20 officers, 35 rangers and 185 foresters ; in addition the Forest Industries Development Corporation will require 4 officers and about 20 rangers. As noted above, the Pakistan Forest College will train officers and rangers during the Plan period. Facilities at forestry schools for the training of foresters will be expanded to provide for the additional requirements, as well as normal replacements. The completion of the Forestry College and the Forest Institutes, along with re-employment and promotion of junior staff, will meet the expanding staff needs of the forestry development programme. Senior staff may need some training abroad. Staff will receive in-service training in refresher courses at the Forest Institutes and the College.

Forestry statistics

136. The First Plan proposed that all forest areas, whether private or state-owned, should be classified on the basis of their economic possibilities as " protective " or " productive " forests, the latter being sub-classified as " timber ", " firewood ", and " pastures ". Practically no improvement in the collection or maintenance of statistics occurred in the First Plan period. Because sound planning depends on good statistics, this proposal is strongly reiterated.

Parks and game sanctuaries

137. In order to encourage tourism and to develop the recreational aspects of forestry, the Plan provides for the establishment of three national parks. These will be located at Chhanga Manga near Lahore, in the Kaghan Valley, and in the Chittagong Hill Tracts. A game sanctuary will be established in the Sunderbans.

TABLE 11

Public sector development expenditure on forests, 1960-61 *to* 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Extraction and utilization	29·1	16·0	...	45·1
Afforestation and regeneration ...	11·4	46·2	...	57·6
Research and education	3·3	3·4	15·3	22·0
Other schemes	7·6	1·5	...	9·1
Total ...	51·4	67·1	15·3	133·8

Soil conservation

138. The need for soil conservation occurs principally in West Pakistan, where the problem of soil erosion is serious. Of the total land area of some 198 million acres in the Province, about 23 million acres are irrigated and the balance is either *barani* (rainfed arable land) or hilly and waste land. Over 160 million acres suffer in varying degrees from wind and water erosion. Destructive exploitation, over-grazing, deforestation and consequent erosion of the upland areas, have contributed towards siltation of river beds and frequency of floods. There is, accordingly, great need for a comprehensive soil conservation programme.

139. The gravity of the problem has been long realized, but serious steps to find a solution were taken only in 1954 when a three-year pilot project was initiated to cover five affected areas in the districts of Gujrat, Jhelum, Rawalpindi, Campbellpur and Mardan. The scheme was expanded in scope in 1958 to provide for anti-erosion operations in fifteen areas in the upland districts. By the end of the First Plan period, however, only eight new demonstration areas were opened. Progress of work was impeded by difficulties arising from the pattern of small holdings, the weak financial position of the farmers, and delays in procuring the required machinery and trained personnel.

140. The Second Plan provides for completion of the project under way, starting operations on eight demonstration areas. Each area, comprising a complete catchment or a sub-catchment basin, will be about 15,000 acres in size, making a total of about 100,000 acres. The work in these areas will include soil, agronomic, range, forestry, engineering and other surveys and land capability classifications; preparation of sub-catchment working plans and field applications; construction of broad-based level terraces, diversion

and bench terraces, water spreading devices, and contour tillage development of water disposal systems, ponds, waterways and agronomic and cultural conservation practices. Work relating to range and forest lands, and run-off, and gully control will also be undertaken depending on the type of area to be handled. Working plans will be drawn up for small sub-catchments of about 200 to 300 acres, starting from the top of the catchment downwards. As the work is to be carried out on a complete catchment or sub-catchment basis, it will be necessary to treat every field starting from the higher elevations within each unit. Of the areas not covered so far, Kohistan and Registan tracts of the Hyderabad Division need early attention. The programme for the improvement of these areas include dry zone afforestation, grazing control and mechanical reclamation of suitable lands. Three centres will be set up in the area surrounding the upper reaches of the Jhelum river to develop soil conservation techniques and to check soil erosion in that territory. An area of 1,000 acres will be treated every year at each centre. Provision is made for the training, education, and research needs of the programme. Recommendations in the First Plan for coordination of conservation plans is reiterated. There is need, also, for carrying out extensive reconnaissance surveys of West Pakistan on a regional basis to determine more precisely the gravity of the problem and the appropriate programmes for different areas.

141. Soil conservation in West Pakistan poses a problem of great immensity (comparable in this respect with the problems of waterlogging and salinity), requiring outlays for its solution far beyond presently foreseeable resources. The Plan, therefore, attempts no more than to approach the problem on a very limited and selective basis. Far more effective measures to deal with this problem will be necessary in future Plan periods. A sum of Rs. 16 million is provided for the programme in the Second Plan.

Fisheries

142. Fish is an important protein food, rich in phosphorus, fat and minerals. As the diet of the people is generally low in protective foods, fish can provide a valuable balancing element. Fish can also provide important by-products in the form of fish oils, manure, and animal and poultry feed. The country's resources in fish, especially marine, are rich and abundant, as revealed by surveys made since 1951 by the Central Fisheries Department along the coast of West Pakistan, and by Japanese trawlers in the Bay of Bengal. Hitherto this rich resource has remained unexploited.

143. The main objective of the fisheries programme is to exploit this wealth : to find and catch more fish, and to transport and market it with minimum wastage. The processing of fish for export is an important corollary to the production effort, with prospects of substantial foreign exchange earnings. These general objectives, with technical and organizational measures for their achievement, were also stated in the First Plan.

144. The marine and inland fisheries programmes differ in many respects, and are discussed separately. Many activities must be undertaken directly by the Government, but the major responsibility for increasing fish production must remain with the private sector : the individual fishermen or cooperatives. The Government can help by providing credit, special concessions, training, research, and extension facilities.

145. The First Plan programme for the development of fisheries was not fully implemented. Supplies of fish from the country's inland and coastal waters increased from 256 thousand tons in 1954-55 to 290 thousand tons in 1959-60, an increase of 13 per cent against the target of 30 per cent.

TABLE 12

Fish production, 1954-55 *and* 1959-60 *and targets* 1964-65

	1954-55	1959-60	1964-65	Increase 1959-60 to 1964-65
		Thousand tons		Per cent
East Pakistan	193	223	260	17
Marine	23	37	60	62
Inland	170	186	200	8
West Pakistan	63	67	100	49
Marine	48	51	74	45
Inland	15	16	26	63
All Pakistan	256	290	360	24
Marine	71	88	134	52
Inland	185	202	226	12

Programme for the Second Plan period

146. The fisheries programme in the Second Plan aims at increasing the supply of fish and promoting its more effective use. To these ends, the Government's responsibility will include initiation of a marine fish survey ; assistance to the fishing industry, both marine and inland, in improving their craft and equipment ; provision of facilities for better marketing and processing of fish ; development and conservation of fish in inland waters ; improvement of facilities for training, research, and collection of statistics ; and encouragement of fisheries cooperative societies. The production target is to increase fish supplies by 24 per cent during the Plan period.

Marine fisheries

147. *Surveys.*—Although preliminary surveys have been encouraging, modern deep-sea fishing requires very detailed information about fishing areas. The larger fishing nations maintain survey and scouting vessels scattered

hroughout the world. Effective exploitation of Pakistan's fisheries
easources will require constant surveying and scouting in the adjacent waters.
'o this end the Government will establish two marine survey units to operate
n the waters of East Pakistan, and off the coast of West Pakistan. These
nits will also collect oceanographic and hydrological data about salinity,
emperature, and currents, to help in determining the habits and migration
f fish.

148. *Fishing technology.*—The sailing boats which operate off the coast
f West Pakistan are of very limited range, but are seaworthy, and can be
asily converted into mechanized trawlers. In East Pakistan, however, the
xisting fishing boats are unsuited to conversion, and new boats are required.
uring the First Plan period, 163 marine diesel engines were provided through
oreign aid ; most of them have been sold to fisheries cooperative societies,
nd installed in new hulls. In East Pakistan two power launches and
few smaller boats were constructed and sold to fishermen on credit ; a dozen
nore mechanized boats are under construction. The Second Plan provides
or the construction and mechanization of about 400 fishing boats, mainly
y private enterprise, with engines and other equipment to be procured
rough the cooperatives against import licences to be given by the Govern-
nent. To encourage private enterprise to make this investment, credit
acilities and tax concessions are proposed. It is believed that 400 craft is
ne maximum the societies will be ready to undertake by 1965.

149. Modern fishing equipment includes nylon nets, synthetic floats,
ooks, coir, and nylon ropes ; fish catches are increased when improved
ear is introduced. The First Plan provided Rs. 3 million for nylon twine.
ts. 7·5 million for the import of nylon twine is provided in the Second Plan ;
n addition, other equipment will also be imported. The objective is to
nodernize about thirty per cent of the present fishing gear by 1965.

150. *Marketing.*—The marketing of fish requires adequate transport,
torage, and processing capacity, both to provide good supplies to the home
arket, and to develop an export trade in fish and fish products. During
he First Plan period, work was begun on a modern fish harbour at Karachi,
ncluding a cold storage plant, wholesale market, sea-food cafe, technological
nd biological research station, workshop, slipways, and fish drying yards.
he fish caught off the Mekran coast require rapid transport to the market
n Karachi, or must be cured at the unloading centres ; accordingly marine
iesel launches were constructed to carry fish to Karachi.

151. No marketing organization or market premises for fish exist on
he Gwadur coast, nor are landing piers or other facilities available to berth
he boats on return from fishing trips. The Plan provides for these facilities.
Modern fish curing yards are being established at Gwadur and Pasni. In
ddition to the facilities at Karachi Fish Harbour, provision has been made
or cold storage plants in other parts of the city. Sixteen modern fish stalls
onstructed to retail fresh fish have not proved popular. An investigation
hould be undertaken to find economic methods of fish distribution, and to
void repetition of unremunerative marketing practices.

152. The processing of marine products includes canning and freezing of fish, shrimps and prawns, and curing of fish by salting and drying. Three freezing plants for fish and shrimps, and one fish canning plant are in operation at Karachi. These plants will be used to full capacity, as the fish supply expands, and still more will be needed. The Plan provides for one new freezing plant and one canning plant on the Mekran coast. Two more fish meal plants on the Mekran coast will be added to the two already in operation at Karachi. In East Pakistan, a canning and a freezing plant for shrimps are being constructed by private enterprise, with encouragement from the Government. Thirty tons of cold storage and ten tons of ice plant capacity are being installed at Chittagong.

Inland fisheries

153. *Development and conservation.*—Inland fish resources are more limited, and an increase in output is more difficult to obtain than from marine fisheries. Conditions vary widely between the Provinces. In East Pakistan, where inland fishing is a large and widespread industry, the main problem is to improve the quality of fish. In West Pakistan, the primary need is to extend the areas devoted to fish farming.

154. The extension of fishing areas must start in both the Provinces through the supply of fish fry and fingerlings to private individuals, and through the stocking of government-owned tanks, ponds, *bhils*, and reservoirs. The Plan proposes the addition of 26,000 acres in West Pakistan and 25,000 acres in East Pakistan to the existing fish production areas. Many tanks, *bhils*, and derelict water areas will need some improvement before they can be stocked. The supply of fry and fingerlings will be assured by establishing additional fish supply centres in West Pakistan. Fry will be collected, raised to fingerling size, and then supplied to private growers at a nominal price. In East Pakistan, fry will be purchased from individual suppliers, stocked in reclaimed water areas, and sold cheaply for stocking water areas where they are not available. About fifty fish fry multiplication farms will be established in East Pakistan.

155. In order to conserve fish resources, legislative measures have been introduced in both the Provinces, but have not been effectively enforced, particularly in East Pakistan. More vigilant enforcement will be necessary.

156. Suitable arrangements do not exist in the canal regulators either to keep fish from entering the canal, or to permit them to migrate into the rivers when the canals are closed for maintenance. This leads to a heavy loss of fish every year. Fish ladders already provided in the barrages will be improved during the Plan period to avoid such losses, and to facilitate ascent by the fish for breeding.

Marketing

157. It has been estimated that almost half the fish sent to market deteriorates in varying degrees before it reaches the consumer. To reduce this waste, public sheds are to be provided at the main assembling centres to prevent exposure of fish to the sun ; a fish landing jetty is to be constructed at Khulna Ghat ; a jetty and a wholesale fish market are to be provided at Chittagong ; eight insulated vans and a thousand insulated boxes are to be provided to transport fish to the markets in West Pakistan ; eleven mechanized fish transport launches in East Pakistan are to be sold to private persons or cooperatives on credit; ice and cold storage facilities are to be provided ; four cold storage and four ice plants will be built in West Pakistan, and three combined cold storage and ice plants in East Pakistan.

Training and education

158. One of the major difficulties in implementing the First Plan was shortage of adequately trained staff. The Second Plan provides for additional training facilities in both the Provinces, with extension techniques to promote the expansion of the industry. In West Pakistan, a sub-centre will be started at Peshawar during the Plan period to impart training to the staff and others interested in the technique of fish production. This will supplement the existing training centre at Lahore. Village AID workers and development officers also will be given similar training. In East Pakistan, the Fisheries Training Institute which is being set up will train the staff of the Fisheries Department. The Plan provides also for the services of fisheries specialists to be made available at district headquarters and in all Village AID development areas where required. In East Pakistan, the extension programme includes fisheries fieldmen, attached to each sub-division.

Research

159. Examples of current research are the control of aquatic vegetation; elimination of predacious animals in ponds ; culture of shrimps, pearl oysters, and pearl mussels ; and classification, distribution, and migratory habits of *hilsa*. Other problems to be investigated during the Plan period include breeding of foreign varieties of fish, control of fish parasites and diseases, and development of by-products such as shark oil and fish glue.

Statistics

160. Fisheries statistics are in an unsatisfactory state ; the methods of collection and coverage need substantial improvement. The Plan proposes collection and compilation of statistical data by the Fisheries Departments relating to fish production, catches, number of fishermen, boats, gear, tackle, cold storage and transport facilities, resources of available water areas, and loss of fish due to putrefaction during transit.

Private sector

161. Cold storage, ice plants, fishing and carrier vessels, and fish industries, such as canning, freezing, and fish meal manufacture are to be developed through private enterprise, with government encouragement and provision of credit facilities.

Cooperative organization

162. Fishermen generally have insufficient capital to mechanize their craft or modernize their equipment ; they are unable also to transport, store, and market their product efficiently. The most effective way to help them is through organization of cooperative societies under efficient management. The Karachi Fishermen's Cooperative Society is a good example of what is needed and can be done. The society extends credit to its members, undertakes marketing, and provides fresh water supply, hospitals for the fishing villages, pensions for disabled fishermen, and schooling for the children of members. The creation of similar cooperatives in East Pakistan and on the Mekran coast will require assistance from the Government. Cooperative organization can also be extended to inland fisheries, where the market is large, and the fishermen face many of the same difficulties in transport, marketing, and storage as do the marine fishermen.

163. Table 13 summarizes the estimated expenditure in the public sector on fisheries development during the Plan period.

TABLE 13

Public sector development expenditure on fisheries, 1960-61 *to* 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Development and conservation ...	13·0	1·9	12·4	27·3
Marketing	2·3	2·5	11·4	16·2
Education	0·5	0·2	0·4	1·1
Research	1·5	0·2	5·9	7·6
Other programmes	...	0·8	(a)	0·8
Total ...	17·3	5·6	30·1	53·0
Less recoveries ...	2·8	1·8	2·4	7·0
Net total ...	14·5	3·8	27·7	46·0

(a) Less than half a million rupees.

Agricultural education

164. There are at present three agricultural colleges in West Pakistan, located at Peshawar, Lyallpur, and Tandojam, and one in East Pakistan at Dacca. To promote the development of teaching and research programmes

to the highest level, an agricultural university will be established in each Province. These universities will provide professional training in agriculture, animal husbandry, agricultural economics, fisheries, cooperation, agricultural engineering and basic sciences. To ensure liaison between the universities and the Government, it will be an advantage if the representatives of the Central and Provincial Governments concerned with rural development are made *ex-officio* members of the governing bodies of the universities. Schools for imparting elementary academic training in agriculture, animal husbandry, forestry and fisheries may continue to be run by the respective government departments and their training standards will be improved. It is also recommended that the subject of agriculture be included in the courses of all high schools in rural areas in order to establish a firmer base for expanding technical training in agriculture.

165. The facilities at existing colleges for the production of graduates and post-graduates in agriculture will be expanded so as to admit a total of 500 students per year against the existing enrolment of 380 students. Because of the heavy attrition rate in agricultural education, actual availability of new graduates during the Plan period is estimated at only 980, of which 400 will be provided by the Agriculture College, Lyallpur 210 by the Agriculture College, Tandojam and 140 by the Agriculture College, Peshawar ; or a total of 750 graduates from the institutions of West Pakistan. The Agricultural Institute, Dacca is expected to supply 200 graduates, thus indicating a serious deficiency in East Pakistan. Some 30 graduates are expected to come from agricultural institutions abroad.

166. As indicated in Table 14 the estimated requirement for agricultural graduates for the Plan is 1,040, including allowance for the filling of existing vacancies but excluding any allowance for replacements necessitated by normal wastage.

TABLE 14

Estimated additional requirement of agricultural graduates and post-graduates for the Second Plan

	East Pakistan	West Pakistan	Centre	Total
Provincial Agriculture Departments ...	180	360	...	540
Agricultural Bank, ADFC, rural credit, marketing agencies and others ...	20	20	100	140
Central Ministry of Agriculture ...	...	...	60	60
Food and Agriculture Council of Pakistan and Cotton and Jute Committees (research schemes) ...	...	...	60	60
Total ...	200	380	220	800
Existing vacancies ..	30	200	10	240
Grand total ...	230	580	230	1,040

167. The gap can be closed by employing graduates of pure science wherever possible ; for example, graduates and post-graduates in zoology and entomology can be employed on plant protection work. The estimates indicated in the above table are based on the assumption that no agriculture graduates will be available for the Village AID organization, which will have to recruit its personnel from other sources. It is likewise assumed that agricultural credit organizations will be able to obtain some of their needs through specialized training courses in cooperation, credit and related fields.

168. A sum of Rs. 40 million has been provided in the Plan for the promotion of agricultural education.

Rural credit and cooperative marketing

169. The great majority of farmers in the country lack capital for productive investment. They need credit to purchase and maintain equipment, to purchase seed, fertilizer, and bullocks, and even to tide over their consumption requirements during the interval between sowing and harvesting. No country-wide survey has been conducted to ascertain the extent of agricultural credit requirements, but it is certain that the needs are very great. The various sources of credit are *taccavi* loans by the Government, the cooperative societies, the Agricultural Development Finance Corporation, the Agricultural Bank, and non-institutional sources such as friends and relatives, landlords, commission agents, and private money-lenders.

170. *Taccavi* loans are given by the Government under the Land Improvement Loans Act, 1883, and Agriculturists Loans Act of 1884. These loans are repayable over a period of one to twenty years, depending on the purpose of the loan. Loans may be made at reduced rates of interest or even interest-free ; in bad seasons, the Government may suspend repayment, remit interest or write off the loan altogether. The loans made and the recoveries realised by the Government during 1955-59, accordnig to the Credit Inquiry Commission Report, 1959, amounted to Rs. 89 million and Rs. 33 million respectively. The position was relatively more satisfactory in West Pakistan than in East Pakistan. Various reasons can be given for the low recoveries : the amounts loaned are usually small and can hardly be considered as production loans ; it is generally taken for granted by the farmer that *taccavi* loans are in the nature of gift or relief rather than loans to be repaid ; and default was encouraged by indiscriminate remissions granted in East Pakistan in past years on political considerations.

171. The cooperatives, which were started in 1904, are another source of credit. The framework of the cooperatives consists of Provincial banks at the apex level, central banks at the district or sub-division level, and societies affiliated to the central banks at the primary level. The First Plan attached high priority to the development of the cooperative movement. However, little was accomplished during the Plan period. Table 15 summarizes changes in number, membership and working capital of cooperative banks and societies during 1955-59. In East Pakistan there was a fal in the number

and membership of societies as many ineffective societies were liquidated and others amalgamated ; the working capital increased insignificantly but the amount of loans disbursed and recoveries made registered a decline. In West Pakistan, however, the number of cooperative banks and societies, their membership, working capital and advances showed some increase during the same period.

TABLE 15

Numbers, membership and working capital of cooperative banks and societies, 1955-56 to 1958-59

	1955-56	1956-57	1957-58	1958-59
		Thousands		
East Pakistan :				
Number of societies	8·4	6·7	6·6	6·6
Membership :				
Primary and central societies ...	13	13	12	12
Individuals	2,387	1,380	1,446	1,400
		Million Rupees		
Working capital	113·6	104·0	105·6	115·0
West Pakistan :		Thousands		
Number of societies	20·0	20·8	21·6	22·3
Membership :				
Primary and central societies ...	34	35	35	35
Individuals	890	918	946	973
		Million Rupees		
Working capital	416·2	453·2	457·5	462·7
Total		Thousands		
Number of societies	28·4	27·5	28·2	28·9
Membership :				
Primary and central societies... ...	47	48	47	47
Individuals	3,277	2,298	2,392	2,373
		Million Rupees		
Working capital	529·8	557·2	563·1	577·7

Source : Provincial Registrars of Cooperative Societies.

172. The Agricultural Development Finance Corporation was established in 1952 with an authorized capital of Rs. 50 million. By June 1959 the Corporation had established 17 branches—8 in East Pakistan and 9 in West Pakistan, and had advanced Rs. 27·3 million and sanctioned another Rs. 18·7 million as loans. Most of these were for medium and short term periods. Recoveries amounting to 75 per cent of the principal and 80 per cent of the interest due, were made during the same period. The performance of the Corporation has been limited by lack of staff; difficulties

on the part of the borrowers in providing security ; rigidities (now relaxed) in laws restricting transfer, sale, and mortgage of land ; lack of full proprietary rights by the settlers in certain new areas such as the Thal and Kotri Barrage ; and time consumed by the Corporation in checking whether the property offered as security was free from encumbrances.

173. The Agricultural Bank was established in 1957 with an authorized share capital of Rs. 200 million of which Rs. 30 million was subscribed, Rs. 20 million by the Central Government and Rs. 5 million each by the Provincial Governments. The Bank established sixteen branches—eight in each Province—and commenced business in January 1959 in East Pakistan, and in April 1959 in West Pakistan. By June 1959 loans amounting to Rs. 3·86 million were sanctioned; of these Rs. 2·92 million was actually disbursed. All loans due for recovery were recovered.

Proposals in the Second Plan

174. *Cooperatives.*—The best prospect for solving the problem of rural credit lies eventually in setting up cooperatives. The cooperative system has clear advantages over other systems : it provides credit to the farmer almost at his door without his having to travel long distances as he must to obtain *taccavi* or other loans ; the members of the cooperatives have an intimate knowledge of one another's financial position and borrowing needs; and the overhead and administrative expenditures are low. A prerequisite of success, however, is that cooperatives must function under sound management. The farmer should be able to obtain loans at the right time, at reasonable rates of interest and without harrassment, and the recoveries of loans should be satisfactory.

175. The Plan provides for the rehabilitation as well as further development of the cooperative movement at all levels of cooperative institutions : the primary societies, the secondary societies (usually called the Central Cooperative Banks), and the Apex Bank. The primary societies will have individuals as members ; the Central Cooperative Banks will have the primary societies within their jurisdiction affiliated to them as members and will have no individuals as members ; and the Apex Bank will have the Central Cooperative Banks affiliated to it as members and will have no individuals as members. There will be only one Apex Bank in each Province. The Central Cooperative Banks and the Apex Bank will be debarred from making loans to individuals. At present the Central Cooperative Banks are engaged in commercial banking in addition to their normal cooperative business. It is proposed that they should withdraw from commercial banking business as soon as possible and concentrate exclusively on cooperative business.

176. The proposed cooperative hierarchy is expected to provide the necessary support to the primary societies. All cooperative institutions are expected to mobilize savings in the form of share capital and of deposits invited by offering attractive rates of interest. Only as a last resort should the banks borrow from the State Bank, which should not as a rule provide funds at subsidized rates. The cooperative institutions should be encouraged to mobilize their own resources and should not become a channel for pumping State Bank funds into the economy, with consequent serious inflationary effect. The Government may participate in the share capital of the Apex Banks up to one-third of the paid-up share capital.

177. In the development of the cooperative movement, the main effort should be concentrated on the organization of the primary societies. Although it is highly desirable to cover the whole country by effective cooperatives in the shortest possible time, the programme proposed in the Plan is limited by the availability of staff and financial resources, and the ability to organize efficient societies. It is proposed that at least 500 new large primary societies should be established during the Plan period in West Pakistan, preferably in the fully staffed Village AID areas. Each such society should have a membership of about 100, a paid-up share capital of Rs. 10,000 and a loan capacity approaching Rs. 100,000. Besides providing credit, these societies should undertake the marketing of produce and the supply of essential requirements of their members. The societies should have paid secretaries trained at the Cooperative Colleges. Furthermore, at least 10,000 new small societies will be organized. In addition to the establishment of new societies, the Plan provides for the reorganization of at least 1,250 existing small cooperative societies which should, where possible, be expanded in size. In East Pakistan, 500 of the existing 3,500 union multipurpose societies will be reorganized, preferably in the fully-staffed Village AID areas, with a membership of about 300 functioning in a way similar to that of the primary societies in West Pakistan. In order to set up new, and develop and improve the existing societies, the Village AID workers, under the general guidance and supervision of the cooperation and marketing specialist at the development area level, will promote the spirit of self-help and mutual help to foster the cooperative movement.

178. The management of the primary societies should endeavour to ensure that loans granted are used for the productive purposes for which they are obtained. With rare exceptions, loans should be extended in kind to ensure their proper use. The Village AID worker, with the assistance of the specialists available in the development area, should help the societies to determine the farmer's needs for credit, and also help the farmer to use the loans effectively. The loans will be extended at a rate of interest which should enable the societies to cover the cost of administering loans. Loans overdue should be recovered as arrears of land revenue by the revenue authorities.

179. One of the reasons for the slow progress of the cooperative movement is the lack of marketing facilities provided to the farmers by cooperatives. In sizeable market towns there should be a cooperative marketing society (secondary level) which should handle the produce of its constitutent primary credit societies, as well as of their individual members. The marketing societies will undertake the disposal of produce, construct godowns at suitable centres, and supply improved seeds, fertilizers, and other requirements of the members. The Plan proposes the establishment of 100 marketing societies in West Pakistan. Each marketing society will serve about 20 to 30 members primary cooperative societies, market the produce, and buy the supplies needed by members. To make the societies work successfully, the by-laws of the credit cooperative societies should restrict sale of produce by a member farmer to the marketing society, if a loan has already been advanced by it. In any case he should be able to obtain loans against his produce. The farmer should be able to deposit his produce with the marketing society and obtain a receipt which he could use as a negotiable document. In East Pakistan 30 central multipurpose societies will be reorganized during the Plan period. These societies will act as central marketing associations for the affiliated union societies and will purchase produce from them as well as from their individual members.

Taccavi loans

180. Until cooperative societies are organized throughout the rural areas, *taccavi* loans will continue to be made to meet agricultural credit needs, though on a progressively declining scale. During the Plan period, *taccavi* loans will be extended mainly to four types of areas : (i) where cooperative societies do not exist and are not likely to be established ; (ii) where offices of the Agricultural Bank or Agricultural Development Finance Corporation do not exist; (iii) where colonization is in progress but cooperative societies have not been or are not likely to be established ; and (iv) in special cases in areas where land reforms are being implemented. While the procedure for securing *taccavi* loans should be simplified to help the farmer, there should be equal insistence on making loan recoveries more effective. Loans should be large enough for the productive purpose for which they are made, and should be issued in kind to the extent possible. There should be continuous supervision and audit to see that they are properly used. Efforts should be made to recover the outstanding loans, and an investigation made to identify the causes of poor recovery, delays, and remissions, to serve as a guide to future policy.

Agricultural Bank

181. The Agricultural Development Finance Corporation and the Agricultural Bank, though independent of each other, operate in the same field of activity, except that they function in different geographical areas.

Both institutions are organized to provide short, medium, and long-term loans against security. As recommended in the First Plan and by the Credit Inquiry Commission, they should be merged into a single institution which may be called the Agricultural Bank. This will result in a saving in overheads and will reduce administrative costs. The Bank should open branches in both the Provinces where cooperative societies are non-existent and where there are no immediate prospects of organising such societies. The Bank should supplement rather than supplant the cooperatives. The ultimate objective should be that the Bank concentrates on long-term finance and the cooperative societies meet the short and medium term credit requirements of the farmers. The Bank should rely for its working capital on share capital and deposits and should borrow from the State Bank only as a last resort. The working of the land mortgage banks in East Pakistan, and their relationship with the Agricultural Bank, will require careful study with a view to avoiding wasteful competition.

Rate of interest

182. Different rates of interest are charged by various credit institutions for loans extended to farmers. The Agricultural Bank and the Agricultural Development Finance Corporation charge an interest rate of 5 per cent, and primary cooperative societies 8 to 9-1/2 per cent ; *taccavi* loans are issued at 5-1/2 per cent in West Pakistan ; in East Pakistan distress loans are issued at 6-1/2 per cent and other loans at even higher rates. The lower rate of interest charged by the Agricultural Bank and the Agricultural Development Finance Corporation, as compared with that of cooperative societies, is not likely to further the cooperative movement. There is need for rationalizing the rates of interest charged by the agricultural credit agencies. In principle, loans should be extended at a rate of interest which should enable the societies to cover the cost of administration, losses due to bad debts, and other liabilities. As relevant information is lacking, it is not possible to suggest any specific interest rate. The question will require expert examination. In the meanwhile no ceiling should be fixed on the rate of interest that can be charged by the credit institutions.

National credit survey

183. The First Plan proposed a national credit survey on a sample basis to obtain reliable information about sources of credit, prevailing rates of interest, and credit requirements, present and prospective. Not much has been achieved in this respect, and data are still lacking about the credit needs of the country, the scale on, and sources from, which they are being met, the purposes for which credit is provided and the results attained. Such data are essential for determining the credit policies of the Government. It is proposed that a survey of the type recommended in the First Plan should now be made in order to obtain adequate and accurate data on all aspects of the problem.

Warehousing corporation

184. The extension of credit to farmers may not be fully effective without the provision of storage for their products. With adequate warehousing facilities a farmer may store his produce, obtain a receipt against the stored produce, and use it as a negotiable instrument. The First Plan proposed the establishment of a warehousing corporation as a subsidiary to the Agricultural Bank to plan, design, finance, and construct warehouses. The Credit Inquiry Commission made a similar recommendation, and has suggested that warehousing corporations should be statutory bodies established under central legislation. The recommendation of the First Plan is reiterated. The proposed corporation should build godowns wherever necessary, giving first priority to areas served by cooperative marketing societies and the Agricultural Bank. In areas not served by cooperative societies or the Agricultural Bank, the warehousing corporation may have to operate independently.

Training

185. The principles and procedures of agricultural credit institutions differ considerably from those followed by commercial banks, and as such require specially trained staff. The shortage of suitably trained staff has in the past been a major cause of the slow growth of the cooperative and other credit agencies. The First Plan proposed the establishment of a cooperative college in each Province to train staff. The West Pakistan college and two regional schools are now in being ; the East Pakistan college is expected to be completed by 1962. The Agricultural Bank started a course in 1958 for training its officers and those of the Agricultural Development Finance Corporation in economics, principles of cooperation, statistics, banking, and accountancy in addition to practical training in agriculture, land survey, and settlement. The Agricultural Development Finance Corporation subsequently set up its own training institute to equip its field staff with basic knowledge of agriculture, economics, banking practices, and tenancy laws.

186. It is proposed that the training programme should be improved by strengthening and expanding existing institutions, and by the completion of the cooperative college in East Pakistan. These institutions will train management personnel, inspectors, sub-inspectors, accountants and other senior personnel for the credit institutions. The training programme of the Agricultural Development Finance Corporation and the Agricultural Bank should be coordinated and gradually extended to meet staff requirements at all levels.

Financial requirements

187. A provision of Rs. 200 million is made for the development of rural credit : East Pakistan, Rs. 70 million ; West Pakistan, Rs. 40 million ; Centre, Rs. 90 million. The allocations do not take account of recoveries to be realized, which will be reused for credit purposes.

Land reforms

188. Land tenure is the body of laws and customs which determine the varying rights of people and the state in the ownership, control, and use of land. The expression "land reforms" as used in this chapter applies to all measures aimed at eliminating the undesirable features of the land tenure system. Land reforms include elimination of large concentrations of land ownership in a few hands, consolidation of uneconomically fragmented holdings, regulation of landlord-tenant relations, and provision of various supplementary services, such as credit and technical assistance, which have as their purpose the strengthening of the institutional structure of agriculture. Land held in large units by single and often absentee owners is rarely operated efficiently ; too often, such land is identified with apathetic management, lack of economic incentives to the tenant cultivator, and general resistance to productive technology. Intelligent sub-division and redistribution of large holdings to the actual cultivators can provide the income opportunities necessary to stimulate production increases. At the other extreme, excessive fragmentation of land-holdings is destructive of operating efficiency. Similarly, the various laws and customs governing the sharing of costs and returns by landlords and tenants can promote or retard production, depending upon whether labour, management, and capital receive shares proportionate to their respective contributions to the enterprise. A system which tends to hold the cultivator close to the margin of subsistence, more or less regardless of the effort and skill expended by him, has been correctly called "the dead hand of feudalism." Rewards for production gains must flow to those who have earned them if there is to be a sustained incentive. Furthermore, only good husbandry and wise capital investment can be achieved in an atmosphere of secure expectations, either through the permanent tenure of ownership or by safeguards to protect the tenant against unwarranted eviction. The provision of suitable credit services is basic when land reforms involve the creation of new land-owners, both to liberate cultivators from the oppression of economic controls that often characterize private credit sources, and to assure them the means to support a higher level of productivity. Technical guidance also is seriously needed to raise the management capacity of new land-owners.

189. The indirect economic benefits of land reforms are equally important. To the extent that a broader distribution of land resources, in units of optimum size, is accomplished, a vigorous middle-income class is created. The existence of a substantial number of families in the middle-income category, in turn, is at once a stimulus and a stabilizing force to the market for goods and services provided by other sectors of the economy. In more than one country, far-reaching land reforms have set the stage for rapid industrial development. A natural consequence of the economic improvement that accompanies effective land reforms is healthier social and political conditions. Higher and more widely distributed incomes furnish the means and the desire for better education, health, and welfare standards. Equality of opportunity promotes confidence in the government that provides it, and is conducive to vigilant and enlightened citizenship.

190. As in many other Asian countries, the need has long been clear for reforming the agrarian structure to remove checks to higher agricultural production and efficiency, and to reduce social disparity. The pioneer legislation was the East Bengal Estate Acquisition and Tenancy Act of 1950, which was, however, fully implemented only in April 1956, when all the intermediary land-holding interests were acquired by the Government. In West Pakistan, the Muslim League Agrarian Reforms Committee in 1949 recommended various short-term and long-term measures for modifying the agrarian structure. In the former Punjab, a Tenancy Laws Enquiry Committee endorsed the short-term measures advocated by the Muslim League Agrarian Reforms Committee. The Sind Tenancy Laws Committee Report of 1945 was followed by the Hari Committee Report in 1948. The various Provincial Governments sought to apply partial land reforms ; some were implemented but many others remained a dead letter. Generally, although various efforts were made towards land reform before 1955, little was achieved. Progress in the First Plan period and prospects for the Second are reviewed below. Because the systems of tenure and the related problems differ in each Province, they are discussed separately.

Land reforms in West Pakistan

191. It was noted in the First Plan that in West Pakistan there were large concentrations of estates in the hands of big landlords, many of whom were absentees with little interest in agriculture. In many cases security of tenancy was not assured, the tenants had very little bargaining power because of scarcity of land, and there was a vast unemployed and under-employed rural labour force. Holdings were usually small, and the situation was aggravated by continuous sub-division and fragmentation ; while the quantity of land available for cultivation in the Province was insufficient, vast areas were left uncultivated by big landlords simply for lack of interest. The First Plan, therefore, made a series of proposals, chiefly : (i) the size of ownership and cultivation units should be limited ; (ii) sub-division and fragmentation of holdings below an economic level should be prevented ; (iii) a dynamic programme for the consolidation of fragmented holdings should be carried out ; (iv) the laws relating to ownership and tenancy in various parts of West Pakistan should be unified ; (v) *jagirs* should be abolished ; and (vi) uncultivated culturable land should be brought under the plough.

192. No significant action was taken until October 1958, when the Government appointed the Land Reforms Commission to examine the problems relating to the ownership and tenancy of agricultural land, and to recommend suitable measures for ensuring social justice, security of tenure for the tenant and better production. On the basis of the report of the Commission, the Government announced its land reforms policy in January 1959, imposing a ceiling on holdings, forbidding partition of economic and subsistence holdings, abolishing *jagirs* and other intermediate interests, making consolidation of holdings compulsory, assuring security of tenure to tenants, and conferring ownership rights on certain types of existing tenants. The

Government soon after appointed a Land Commission to ensure the speedy implementation of land reforms. The Commission has collected the relevant information and declared provisional owners, after determining the areas along with the respective owners, whose lands are to be resumed and also the persons entitled to the resumed land. The preparation of compensation rolls, permanent sale to tenants, arrangements for the recovery of the price and the payment of interest on compensation to the land owners are in train.

193. *Ceilings on ownership*.—The most important single reform was the limitation of individual ownership to a maximum area of 500 acres of irrigated or 1,000 acres of non-irrigated land. Certain exemptions were made for the benefit of present owners, including : (i) an existing owner might retain in his possession land equivalent to 36,000 produce index units*, even if in terms of acres it exceeded 500 acres of irrigated land or 1,000 acres of unirrigated land ; (ii) the owner might transfer to his heirs land equivalent to 18,000 produce index units, unless he had already done so between 14 August 1947 and 8 October 1958 ; (iii) the owner could retain 150 acres of orchards if in blocks of not less than 10 acres each, and entered in the records as such, at least since *rabi*, 1956-57 ; (iv) owners of existing stud and livestock farms were allowed to retain such additional areas as the Government considered necessary. The phasing and operations of the land reforms were designed to minimize the problems of transition from unlimited to more restricted ownership of individual holdings.

194. Compensation to the land owners was provided at a rate varying from Rs. 1 to Rs. 5 per produce index unit, depending on the area of the land to be resumed, in fifty half-yearly equated instalments in transferable but non-negotiable bonds bearing interest at 4 per cent per annum on unpaid balance. The Government in turn would sell the land to the new owners at the rate of Rs. 8 per produce index unit payable in fifty half-yearly equated instalments, including an annual interest of 4 per cent on unpaid balance. The difference between the price realized and compensation paid would be used to meet the costs of the land reforms scheme. The rate of compensation was determined in the light of inflationary dangers, the financing capacity of the Government, the needs of both the expropriated landlords for ready cash, and the capacity of the new proprietors to pay for land.

195. As of June 1960, 2·3 million acres of land have been resumed by the Government, of which 1·6 million acres are uncultivated area, and the remaining 700 thousand acres are cultivated. Of the uncultivated land, 1·2 million acres are culturable waste land, while the remaining 400 thousand acres are not culturable. Of the cultivated area about 545 thousand acres were in the possession of tenants, about 128 thousand acres were cultivated by the owners, and about 27 thousand acres were under forests.

196. The relatively large area of the culturable waste land resumed by the Land Commission (over one million acres) is to be surveyed so that

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*The produce index units generally represent the annual gross produce value of an acre of land, separately calculated according to the various classes of soil and other conditions.

arrangements may be made for bringing this area under the plough at the earliest possible date. A large area of culturable proprietary waste lands also remains uncultivated in the Province. Under the Punjab Land Utilization Act of 1954, land remaining uncultivated for four harvests could be taken over by the Government for a period of ten years and leased to tenants for cultivation. Similarly, in the former Province of Sind, land remaining uncultivated for five years could be taken over by the Government under the "Fallow Rules" and leased out. Neither of these regulations was at all effectively enforced. As proposed by the Land Reforms Commission, a Land Utilization Ordinance was adopted in West Pakistan in August 1959. The ordinance provides that where land remains uncultivated for a period of two years or more, the owner should be given notice to bring it under cultivation within a reasonable period, to be fixed by the Land Commission; in the event of failure to comply with such directions, the land may be requisitioned by the Government for management and utilization on approved lines.

197. Some 128,000 acres which were under cultivation by the landlords have been leased by the Land Commission on tenders for one harvest only; a definite policy for the future has yet to be determined. In order to make the best use of the land resources, it will be necessary to devise a comprehensive programme of land use for various purposes, such as extension of the adjacent holdings of new and old owners, or transfer to former tenants of land which the landlords may retain for cultivation in place of surrendered land, or alienation to the landless.

198. *Abolition of jagirs**.—All *jagirs* which existed in West Pakistan before 7 February 1959 were abolished under the land reforms scheme, and transferred to the Government without compensation; such *jagirs* mainly existed in the former Province of Sind and the States of Bahawalpur and Baluchistan; almost all others had already been abolished. The total number of *jagirs* in the Province was over 800, of which 400 were in the former Province of Sind, 258 in Baluchistan, and 150 in Bahawalpur. As a result of abolition of these *jagirs*, some Rs. 3 million were added to the annual revenues of the Government, apart from the land that became available for redistribution to cultivators.

199. There are, however, some related aspects which need further consideration and timely action. For instance, the abolition of *jagirs* raises the question of identifying the rights of owners and cultivators in *jagirs* which remain to be surveyed. Similarly, the revenue records of the unsurveyed *jagirs*, the unsettled and un-reported areas of Quetta and Kalat Divisions and Hazara and Mardan Districts, and the excluded areas of Dera Ghazi Khan, will have to be completed speedily in order to implement fully the land reforms in these areas. This work will require to be undertaken early in the Second Plan period.

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*The *Jagir* literally means a gift or a grant, but is being commonly used for: (i) any grant of money payable out of land revenue assignment, or remission of land revenue made by a competent authority; or (ii) any estate in land created by the Government, which carried with it the right of collecting land revenue.

200. *Tenancy legislation and security of tenure.*—The Tenancy Acts of 1950, in the former Provinces of Sind, the Punjab and North West Frontier aimed at producing greater security of tenure to the tenants, abolishing non-statutory charges levied on the tenants, and prescribing the ratio of apportionment of produce between the landlord and the tenant, and the incidence of taxation to be borne by each. Except, however, in the former North West Frontier Province the implementation of tenancy legislation did not proceed smoothly. In the former Punjab, it created tension between the landlords and the tenants, and in the former Sind the tenant remained ignorant of his legal rights, and too weak to assert them.

201. The First Plan proposed that, with the merger of the various Provinces and States into a single administrative unit, the various tenancy laws in force in West Pakistan should be consolidated. The land reforms scheme of 1959 provided that the existing rights and duties of landlord and tenant should continue, subject to the provision that, pending any resumption of land under the scheme, no tenant should be ejected unless it was established in a Revenue Court that he had misused the land, or failed to pay the rent or to cultivate it if the rent was payable in kind, or sublet the tenancy. The Land Commission is now formulating uniform regulations to provide adequate security to the tenants. It is intended that the regulations to be framed should not only extend sufficient security to the tenants so as to induce them to invest capital in the land, but should also be so designed as to improve relations between landlords and tenants and thereby help materially in increasing agricultural output. The regulations will endeavour to lay down clearly the rights and responsibilities of tenants and landowners, to be explained to both parties through organized educational campaigns.

202. *Cultivation by owners.*—Under the 1959 land reforms scheme, the land owners, even if they wish to cultivate the land themselves, will not be entitled to eject the tenants. This situation may create difficulties for owners intending to settle on land after retirement from civil or military service or other non-agricultural occupations and may discourage educated persons from settling in the rural areas, and so deprive these areas of more enlightened leadership. This question has already been considered by the Land Commission, which has recommended that Army personnel should, on release from service, be free to eject tenants, after proper notice, in order to be able to cultivate the land themselves. It may be necessary to review the issue as applying to non-military land owners under specific conditions, and for defined size of cultivation units ; care will have to be taken to ensure that there is no unnecessary and unfair ejectment of tenants.

203. *Size of holdings.*—Small and fragmented land holdings reduce the productivity of agricultural land. Neither human effort nor animal or material inputs can be used efficiently, nor can new techniques be easily adopted. Therefore, the question of size of holdings must be considered in terms of both consolidation of existing fragmentation, and prevention of further subdivision into uneconomic units.

204. The First Plan stated that the efforts made by the Government during a quarter of a century to consolidate holdings had not been very

effective; it proposed that the responsibility for the consolidation of holdings should be entrusted to a single department, created for the purpose in the Board of Revenue, which should take over the work from the Departments of Revenue and Cooperation. This was not done, and the scale of consolidation remained small; the additional area consolidated by March 1959 was about 500 thousand acres, bringing the total to 2·3 million acres, against 24 million acres of cultivated land in the former Punjab and North West Frontier Provinces. The Land Commission is now considering the compulsory enforcement of consolidation of holdings within a period of five years, through a department to be established for the purpose. The Commission's recommendations should be finalized and implemented as soon as possible. This can be done only with the fullest public cooperation. The institutions of Basic Democracies, the Village AID organization, and other agencies should be extensively used for disseminating widely the advantages of consolidation. A gross sum of Rs. 83 million has been provided in the Plan for this purpose. After deducting recoveries, estimated at about Rs. 64 million, the net expenditure will be Rs. 19 million.

205. *Sub-division of holdings.*—Under the Muslim law of inheritance the heirs are entitled to receive a fixed share of the estate, regardless of its size or value. The First Plan recognized that fragmentation had certain absolute physical limits; and in the larger interests of the nation, and on the analogy of the action already taken in East Pakistan and in other Muslim countries, the Plan advocated the public acquisition of uneconomic inherited shares of an estate, to be added to the holdings of other owners so as to attain at least the minimum economic unit. The size of the economic holding was not, however, specified in the Plan. The Land Reforms Commission has defined both a "subsistence" and an "economic" holding; the former comprises an area of 12-1/2 to 16 acres, and the latter 50 to 64 acres, depending upon its location. In effect, therefore, the right of alienating land and the physical partition of subsistence and economic holdings have been restricted in cases where the effect of such alienation or partition would be to sub-divide the holding into uneconomic units.

206. In practice, the Land Commission has found this regulation too drastic, and even obstructive to consolidation of holdings. Some modifications have been made by the Land Commission: small owners whose holdings are below subsistence level can now alienate land, without restriction, to other owners of land in their own villages. It is doubtful whether even with such modifications, the scheme can be made to work smoothly, equitably, and with a net benefit to the interest of the community. Under the present provisions, two situations can arise: (i) if the impartible unit is managed by one of the co-inheritors, it will mean the displacement of other co-inheritors who will lose their livelihood, or (ii) despite the fact that in the revenue records the entire impartible area will appear as one unit, the co-sharers may divide it among themselves for cultivation purposes, which will tend to defeat the very object for which the impartibility of holdings was introduced. The present provisions will have to be so amended as to ensure that as few cultivators as possible are ejected from the land, and that agricultural productivity does not suffer.

Land reforms in East Pakistan

207. The East Bengal Estate Acquisition and Tenancy Act, 1950, provided for the acquisition of all rent-receiving interests between the actual cultivator and the State. For *Khas* possession of land (*Khud Kasht* or owner-cultivated) the Act, fixed a ceiling on ownership at either 100 standard *bighas* (about 33 acres) or 10 *bighas* for each member of the family, whichever was greater, ~~plus~~ an additional 10 *bighas* for the homestead. This ceiling was not, however, applicable to mechanized farms, large dairy farms, and tea or sugarcane plantations. The Act also provided for the acquisition of all non-retainable classes of *Khas* lands, such as *hats*, bazars, forests, ferries, and fisheries, belonging to rent-receivers as well as non-rent-receivers. The Act further gave the tenants full occupancy rights with the right of transfer to *bonafide* cultivators, and forbade subletting. Although implementation of the Act started in 1951, progress was extremely slow. The First Plan emphasized the need for speed, recognizing the time and labour involved in bringing up-to-date, and in certain cases even preparing anew, records of rights ; in determining assessment rolls for compensation ; and in resumption of *Khas* lands. Little happened until April 1956, when the East Pakistan Government acquired all intermediary rights. Furthermore, excess *Khas* lands within the retainable classes were acquired in the district of Bakerganj ; so also were the Sunderban portion of the Khulna District, and a few other estates. The total area acquired was about 300,000 acres, half of which is either covered by forests or is marshy, sandy, or otherwise uncultivable. Acquisition of the remaining *Khas* lands still awaits information from the former rent-receivers about the land they propose to retain. The non-retainable classes of *Khas* lands belonging to non-rent-receivers (except in the district of Bakerganj and the Sunderbans portion of Khulna district) remain to be acquired. The revision of records of rights has been completed and is now being attested. The final publication of records of right is expected to be completed by the middle of 1961, and of the compensation assessment rolls by the middle of 1962, when the Government will become legally responsible for payment of compensation.

208. *Land Revenue Commission.*—In December, 1958, the East Pakistan Government, realizing the administrative and other difficulties facing the speedy implementation of the scheme, appointed a Land Revenue Commission. The Commission was asked to examine, *inter alia*, the methods of assessment and payment of compensation, the procedures for the preparation of correct record of rights, the state of collection of rents and cesses, and the administration of the Revenue Department. The Commission reported in July 1959; its main recommendations relate to increasing the ceiling limit for possession of *Khas* land from 100 to 300 *bighas* (about 100 acres) per family generally, and 400 *bighas* in special cases ; impartibility of onwership units below three acres to prevent fragmentation ; adjustments in the mode of payment of compensation ; reorganization of the revenue administration ; and the training of officers and staff to be appointed at various levels to implement the recommendations.

209. The Land Revenue Commission supported a higher ceiling on ownership because it felt that a lower ceiling will not substantially increase the number of tenants who will be able to obtain land. By way of comparison the Commission referred to the ceilings fixed by the land reforms scheme of West Pakistan. The conditions in the two Provinces vary considerably, and careful consideration will have to be given, before modifying any provision of the Act of 1950, to all the relevant local factors such as climate, soil and social institutions. Similarly, before endorsing the recommendation of the Land Revenue Commission that holdings below three acres should be made impartible, the relevant economic and social factors will have to be given due consideration. The Act of 1950 prohibited the sub-division of holdings after the land revenue payable is reduced to less than a Rupee per annum, which in terms of acreage may mean anything from 1/4 of an acre to an acre.

210. The Land Revenue Commission also recommended that *khas* lands hitherto acquired below the ceiling recommended should be returned to the original owners, or if they are already settled, should be the subject of compensation in cash. It is possible that returning lands already acquired or paying compensation in cash if they have been settled might shake the faith of the tenants and the *khas* land owners, and prejudice agricultural production. For the rapid implementation of the scheme, the Land Revenue Commission recommended various steps to accelerate the process of assessment and payment of compensation, and also suggested some modification in the methods of payment of compensation ; for example, all persons who are to receive a total compensation not exceeding Rs. 1,000 should be paid in cash in one instalment, while bonds should be issued to those who are to get compensation above Rs. 1,000. Acceptance of this recommendation of the Land Revenue Commission would involve payment of a very large amount of compensation in cash in one instalment soon after the publication of the compensation assessment rolls. A provision of Rs. 250 million has been made in the non-development budget for the payment of compensation during the Plan period.

211. The Land Revenue Commission recommended that for the effective implementation of the scheme, the Board of Revenue should be strengthened and made autonomous. The experience of the Land Commission of West Pakistan, which has proved an effective instrument for the implementation of the land reforms scheme, may provide a sound model for East Pakistan. As recommended by the Land Revenue Commission, a Revenue Training Academy will be established in the Province, in addition to facilities for training *tehsildars*, and the subordinate staff of the Revenue Department.

212. Realizing the importance of bringing the revenue records up-to-date, the Land Revenue Commission recommended that a thorough revision of the records-of-rights should be made, and rents rationalized by assessing them on the produce of the land. These revisions should be made after all the formalities of acquisitions under the Act of 1950 have been completed, and the management of land and collection of rent have been stabilised ; meanwhile data needed for the revisions should be collected. Effective

safeguards should be provided to ensure that the collection of data does not delay the implementation of the land reforms scheme. The East Pakistan Government appointed a Land Revenue Rules Revision Commission in August, 1959, to examine various land and land revenue laws now in force in the Province, in the light of changed circumstances brought about by the operation of the Act of 1950. Its report is awaited.

213. *Rights of ownership.*—The land reforms scheme, as it stands now, can with advantage be modified in certain respects. According to the Act of 1950, the cultivators have been granted permanent transferable and alienable tenancy rights. The land acquired has, however, been nationalized. The First Plan recommended that, in accordance with the accepted social objectives, the cultivators should be endowed with full rights of ownership in their land. This recommendation has not been adopted on the argument that if the tenants become the owners of land, the income of the Government from land revenue will be curtailed substantially, because the new peasant proprietors will then pay only land revenue which will be barely 12 to 15 per cent of the rent now paid ; the only possible increase in Government income will come from the payment of *salami* (the price of land) for ownership. This argument is justified only on the assumption that the upward revision of land revenue is not possible. In fact, however, the Provincial Revenue Department is already contemplating the rationalization of land revenue ; and it would be reasonable to expect that this will result in increased revenue to the Government, enabling it to build up its own funds for meeting the demand of compensation. The proposal made in the First Plan for conferring full rights of ownership of land on the cultivators is, therefore, repeated.

214. *Share-croppers (bargadars).*—The First Plan noted that share croppers (*bargadars*) in East Pakistan were not recognized as tenants, and that the existing laws did not afford any protection to them. Consequently it proposed that the East Pakistan Government should consider the question of extending legal protection to them. In order to put this proposal into effect, the East Pakistan Government will need to collect the necessary information about the *bargadars*, their number and legal rights and the apportionment of produce between the land owner and the share-cropper. On the basis of the information thus collected, legislation to protect the rights of *bargadars* should be enacted as early as possible. The East Pakistan *Bargadars'* Bill, aimed at regulating the rights *inter se* of *bargadars* and owners of land, was introduced in the East Pakistan Legislature in 1957, but was not passed.

215. *Consolidation of holdings.*—Once the implementation of the land reforms scheme gathers momentum, consolidation of holdings in certain areas should be undertaken as provided in the Act of 1950. There are, however, difficulties in applying the scheme immediately. The stage for such operations will only be reached after the various complications arising out of the Estate Acquisition Act have been cleared with the final publication of the compensation assessment rolls, and after the revision of incidence of

holdings of *raiyats*, the realization of rents and the revision and maintenance of records of rights have been enforced throughout the Province. The Provincial Government considers that the fragmentation of holdings is not a serious problem in East Pakistan. However that may be, it is true that this problem cannot be wholly remedied at present because of the combined effects of heavy pressure of population on land, and of the law of inheritance.

TABLE 16

Public sector development expenditure in agriculture, 1960-61 to 1964-65

(Million Rupees)

Sub-sector	East Pakistan	West Pakistan	Centre	Total
Manures and fertilizers (*a*)	161	157	—	318
Plant protection (*a*)	10	13	233 (*b*)	256
Seed multiplication and distribution (*a*)	47	67	—	114
Mechanization (*a*)	32	31	—	63
Soils	(*c*)	—	9	9
Agricultural economics and statistics	2	2	6	10
Agricultural marketing	1	(*c*)	3	4
Foodgrain storage	73	32	91	196
Agricultural extension	13	8	(*c*)	21
Agricultural research	7	17	—	24
Agricultural education	16	24	—	40
Colonisation (*a*)	20	130	—	150
Animal husbandry (*a*)	40	62	22	124
Range management	—	12	—	12
Forestry (*a*)	52	67	15	134
Soil conservation	—	16	—	16
Fisheries (*a*)	14	4	28	46
Under-developed areas	2	20	16	38
Land reforms (*a*)	57	19	—	76
Central Jute Committee	—	—	4	4
Central Cotton Committee	—	—	2	2
Food and Agriculture Council	—	—	3	3
Total	547	681	432	1,660(*d*)

(*a*) After deducting recoveries.

(*b*) Includes cost of pesticides to be used by the Provinces.

(*c*) Less than half a million Rupees.

(*d*) Excludes Rs. 200 million of rural credit which is shown as a capital liability on government account (page 40, Table 10).

CHAPTER 8

WATER AND POWER

Development problems and possibilities

WIDELY different problems and possibilities of water and power development are presented by the three principal hydrological regions into which the country is naturally divided. These regions are : (i) the humid region of East Pakistan ; (ii) the area (including the Frontier Regions) drained by the river Indus and its tributaries, and most of the adjoining closed basin tracts depending on the Indus waters in West Pakistan ; and (iii) the area drained by the coastal tributaries and the desert streams, comprising the Karachi area, most of the Quetta and Kalat Divisions, and the adjoining tracts.

2. *East Pakistan.*—Most of East Pakistan is a lowland plain built mainly by the delta-forming activity of the Ganges, the Brahmaputra, and the Meghna, and is covered with countless swamps. It is tropical and humid, and has heavy rainfall, which is highly seasonal. Average annual rainfall is about 76 inches, with extremes of from about 53 inches in Rajshahi district to about 226 inches in Sylhet district ; 85 per cent of the rainfall occurs during the five months May to September—the monsoon period. Except for the eastern districts, which are not subject to flooding, the Province comprises flood plains and delta of the three rivers. The country slopes gently towards the sea and most of the area is less than 50 feet above sea level. The land to the west of the Brahmaputra is relatively high, but in the east falls away into a depression—the *beel* and *haor* areas – in the districts of Mymensingh and Sylhet. The soil is very fertile and the land is largely cultivated. Topography and precipitation have determined the agricultural pattern. In the highlands of Tippera, Chittagong, and Chittagong Hill Tracts, not subject to flooding, jute or paddy is grown only in the rainy season. During the dry season a small area is cropped under *rabi* crops, such as pulses. Failure of the monsoon occasionally results in famine conditions over vast areas. Irrigation can insure against drought and make possible double and even triple cropping.

3. The flood plains of the rivers remain under water during the high floods, and are not available for cultivation at that time. Paddy is, however, grown when the water recedes. But if, as frequently happens, the flood is excessive or occurs at an unusual time, or does not recede sufficiently at the time of transplantation of paddy, crop failure results. Flood regulation, irrigation by gravity and surface pumping can greatly alleviate this situation. The major portion of the *haor* areas in the Sylhet and Mymensingh districts remains under water throughout the monsoon season and is dry during winter. *Boro* (winter) paddy is grown in areas that retain moisture from the monsoon flooding. Such areas, however, form a very small portion of the total. Pump-irrigation offers considerable opportunity for developing

these areas, where at present the main occupation is fishing. Large tracts of *beel* areas in Faridpur, Khulna, Tippera, Sylhet, Mymensingh, Rajshahi, Pabna, Bogra and some other districts, remain under water for most of the year. These areas can be drained and brought under cultivation. With protective embankments and irrigation, the coastal areas, which are subject to intrusion of saline sea water, can support intensified and diversified cropping, which at present is mostly paddy.

4. The total area of the Province is about 35·4 million acres of which 24·2 million acres are cultivable. Of this area 22·2 million acres are cultivated and about 21 million acres sown in an average year. Only 600,000 acres are irrigated ; the remaining 97 per cent is dependent on rain. About 7 million acres are double-cropped. Adequate information is not available to determine an ultimate irrigation target, but it is estimated that in the long run the cultivated land could be increased to 26 million acres, with nearly 24 million acres sown in an average year. About 13 million acres could be irrigated by extensive drainage, construction of diversion works and canals, and pumping of surface and sub-surface water, mostly to supplement rainfall during the dry winter season. Extensive investigations are under way by the East Pakistan Water and Power Development Authority to determine the water potential of the Province. The annual flow of the rivers is estimated at 925 million acre-feet, most of which is unregulated flood water during the monsoon season. The possibilities of regulation through storage within the Province are limited to the Chittagong Hill Tracts.

+2m
acr
+13

5. Limited possibilities of regulation of water resources restrict the generation of hydro-electric power to about one million kilowatts. Of this power potential, 120,000 kw are being developed on the Karnafuli river ; investigations are in hand to determine future possibilities. Ultimately it may be possible to develop tidal power. In the meanwhile the region will have to depend greatly on fuel-electricity, which might be generated by the natural gas at Sylhet, the peat reserves of the Province, or wood fuel from the Sunderbans or the forests of the Chittagong Hill Tracts. To electrify the rural areas, extensive transmission and distribution systems are needed to make power generally available to agriculture, industry, and other consumers.

6. The long-range development programme of this region may be summarised as follows :

(*i*) Regulation of river flows to reduce flood damage, improve drainage, and to free agriculture from dependence on variable seasonal rainfall.

(*ii*) Protection of the long belt of tidal lands against intrusion of sea water, and its development through improved irrigation and drainage.

(*iii*) Draining of wet *haor* areas after the monsoon to enhance agricultural production, and improve health conditions.

(*iv*) Determination of the ground water potential and use of ground and surface waters.

7. *The Indus Basin.*—Rainfall over most of the region comprising the Indus basin—the cradle of civilization of the Indo-Pakistan sub-continent—is unevenly distributed and inadequate to meet the full needs of the crops. The period of maximum rainfall coincides with the hottest months of the year, July to September. Temperatures and rainfall exhibit considerable fluctuations. Except for the sub-montane areas where the rainfall is adequate in some years for crop production, the Indus Basin receives less than 15 inches of rainfall a year, 30 per cent of the area receiving less than 10 inches, and 16 per cent less than 5 inches. The rivers of the Indus system are a vital source of irrigation water supply. These rivers have at the rim stations recorded maximum, minimum, and mean annual flows over a period of 25 years (1921-22 to 1945-46) of 213·6, 138·9, and 168·4 million acre-feet respectively. The corresponding volumes of the three western rivers only (the Indus, the Jhelum, and the Chenab) are 173·5, 102·8, and 135·5 million acre-feet. Inflows from the streams below the rim stations have not been regularly measured and, though not large, could be used for local development. d.l. 537 Up to 1959, about 72 million acre-feet, excluding 20 to 40 million acre-feet of annual river losses, are estimated to have been utilized for irrigation. On the completion of schemes in progress, an additional quantity of 26 million acre-feet will be used. The total represents about 71 per cent of the average flow of the three western rivers. Additional supplies of regulated water can be made available through storage. How much additional quantity can be developed depends upon availability of suitable storage sites, which is under investigation. Basin-wide investigations have also been initiated to determine the potential and use of the ground water resources. In the Frontier Regions, no systematic investigations have so far been carried out. There is need for undertaking studies of availability, quality, and quantity of ground waters and the suitability of land for agricultural production.

8. Out of a total area of 116 million acres only 40 million acres are cultivated, and about 30 million acres are sown in an average year. About 23 million acres—approximately 75 per cent of the area sown in an average year—are irrigated. Some 3 million acres are double-cropped. Unfortunately, waterlogging and salinity have assumed serious proportions in several parts of this region, and arable lands have been turning into marshes and salt lands. Most of the irrigated lands need drainage and supplementary water to maintain and increase agricultural production. There are sites on the main rivers and tributaries in the Indus valley where potential power heads are high, water supply is adequate, and good storage possibilities exist to generate several million kilowatts. Preliminary studies indicate that the power potential is of the order of 10 million kw, of which 6 million kw are on the Indus. Only about 200,000 kw, or 2 per cent of the total potential, have yet been developed. Detailed investigations are required to determine the desirable sites and their potential.

The region has also large quantities of coal and reserves of natural gas. The proved reserves of coal stand at 165 million tons, and those of natural gas about 8 trillion cubic feet, approximately equivalent in heating value to 300 million tons of coal. There are limited resources of oil and fuel wood. Thermal power generation will be needed to supplement seasonal power from hydro-electric stations. The possibility of using solar energy and tidal power is not ruled out. To secure best results, the hydro-electric and steam-generated power will need to be carefully integrated with existing and future power systems.

9. The long-range development situation of this region may be summarised as follows:

(*i*) Useable unregulated flow supplies are already appropriated and crop yields are low, partly because of low and irrational applications of water, and partly because of salinity and waterlogging. Possible replacement even of historical uses from the eastern rivers will require construction of storage. Storage will also be needed for providing regulated supplementary supplies for the existing projects and for future development. This will also make available cheap hydro-electricity.

(*ii*) Waterlogging, salinity and alkalinity exist in all irrigated areas in varying degree, and are continuing. Alkalinity and salinization of land will be aggravated with repeated use of pumped and drained water unless corrective measures are adopted. Drainage and efficient use of water and land are necessary.

(*iii*) In many cases, revamping of canals to improve and rationalize water applications is needed. Remodelling will also be necessary when silt-free water is carried by them.

(*iv*) Depletion of river flows will pose problems of river channel deterioration with attendant accentuation of flood damage and drainage congestion, and of sea water encroachment on the Indus delta, with serious consequences to agriculture, buildings, and health. The basin aquifers will be greatly affected by depletions. River channel rectification and flushing of the rivers will be needed.

(*v*) Electrification needs to be pushed as rapidly and on as large a scale as is feasible to serve and promote industry, to pump water for the expansion of agriculture, and to meet domestic and other needs.

10. *Coastal and Desert Streams region* :—This region is coterminous with the former Baluchistan in West Pakistan, is arid, and the lands, though abundantly fertile, remain mostly uncultivated and are sparsely populated because of shortage of water. Of a total area of 82·4 million acres about 800,000 acres are sown in an average year. Approximately half of this is irrigated. The dependable flow in the streams is too small to support

expanded agriculture, and the infrequent storm flows are heavy and of short duration, making the regulation of the scanty water supply for use through storage difficult and expensive. As in the Frontier Regions, there is a shortage of hydrological data and surveys needed for systematic development. In particular, detailed information is lacking on the availability and distribution of water in the region.

11. The Quetta Division has negligible hydro-electric potential, but possesses coal which can be used to generate electricity. The Kalat Division has abundant natural gas at Sui. The remote areas of Mekran have not been surveyed. The Karachi area gets its water from subterranean storage, which has to be greatly supplemented by a long supply canal and conduit from the Indus River. Sui gas is piped to Karachi to serve industrial and domestic purposes.

Progress in the First Plan period

12. *Water.*—In 1955 the irrigated area in the country was 22·7 million acres—about 37 per cent of the total cultivated area of 61 million acres. By 1960 the irrigated area had reached 24 million acres—an increase of 1·3 million acres. Areas improved through drainage, flood regulation, and regulated supplies showed an increase of 2·57 million acres during the same period. Comparison of expectations and achievements in the First Plan is given in Table 1.

TABLE 1

Irrigation programme and results, 1955-60

(Thousand acres)

Region	Programme		Results	
	New	Improved	New	Improved
East Pakistan	100	1,819	58	562
West Pakistan :				
Indus Basin and Frontier Regions	1,453	3,544	1,000	1,998
Coastal and desert streams region	118	48	24	10
Total ...	1,671	5,411	1,082	2,570

13. Progress in reclamation of saline soils and drainage of waterlogged areas during the First Plan period was limited. Against the target of reclaiming 350,000 acres and lowering the water table in 150,000 acres, some 170,000 acres were partially reclaimed, and the water table depressed in a small area only. The First Plan provided for the construction of about 1,500 tubewells; actually 1,000 were sunk, but were not put in operation, primarily because of lack of electric power.

14. *Power.*—In 1955, installed generating capacity was 342,400 kw; of this 200,400 kw were in public utilities (four hydro-electric power plants and about 90 thermal stations) and 142,000 kw in industrial establishments. By 1960, estimated installed capacity was 906,000 kw; of this 654,000 kw were in public utilities, and 252,000 kw in industrial establishments. Table 2 shows the growth, targets and achievements in installed capacity in the three regions.

TABLE 2

Installed power capacity, estimated growth, targets and achievements, 1955-60

(Thousand kilowatts)

Region	1955 (*a*)		1960			
	Public utilities	Industrial establishments	Targets		Achievements (*a*)	
			Public utilities	Industrial establishments	Public utilities	Industrial establishments
East Pakistan	32·2	42·0	190·5	25·0	103·2	72·0
West Pakistan :						
Indus Basin and Frontier Regions	132·8	63·0	547·4	86·0	490·3	122·0
Coastal and desert streams region...	35·4	37·0			60·0	58·0
Total ...	200·4	142·0	737·9	111·0	653·5	252·0

(*a*) *Source* : Chief Engineering Adviser's Office.

Installed generating capacity nearly trebled between 1955 and 1960, while *per capita* electricity consumption rose from about 10 units in 1955 to about 30 units in 1960. In East Pakistan, the increase in public supply capacity was mainly due to the steam plants at Sidhirganj (30,000 kw), Goalpara (16,600 kw), and Bheramara (8,500 kw), and diesel plants at Sidhirganj, Chittagong and Goalpara (15,900 kw). The increase in capacity owned by industry came from the Khulna newsprint factory (16,000 kw), and from such industries as sugar, jute, and textile mills (14,000 kw). In West Pakistan the increase in installed capacity in public utilities was mainly due to the commissioning of the Warsak hydro-electric scheme (160,000 kw), canal hydels (28,000 kw), and the steam stations at Multan, Lyallpur, Montgomery, and Karachi (192,500 kw). The increase in industrial establishments was from the fertilizer factory and the Maple Leaf cement factory, Daudkhel (30,000 kw), the Zeal-Pak cement factory, Hyderabad (7,000 kw), and extensions in the sugar, textile, and other industries (43,000 kw).

15. During the First Plan period a sum of Rs. 1,770 million, against an allocation of Rs. 2,697 million, was spent on water and power development schemes in the public sector, as shown in Table 3.

TABLE 3

Planned and actual expenditure on water and power development, 1955-56 to 1959-60

(Million Rupees)

Region	Planned	Estimated actual
East Pakistan	928·0	350·0
West Pakistan :		
Indus Basin and Frontier Regions	1,714·0	1,415·0
Coastal and desert streams region	55·0	5·0
Total ...	2,697·0	1,770·0

Major First Plan projects

16. *East Pakistan.*—The Karnafuli hydel scheme in East Pakistan was planned to develop one of the very few water storage sites in the Province. It was designed to produce ultimately 120,000 kw of hydro-electric power, of which initially 80,000 kw would be installed; to improve navigation to the port of Chittagong and upstream; and to abate flood damage through regulation of flood flow in the Karnafuli river. It was scheduled for completion in 1960, at an estimated cost of Rs. 250 million. It is now expected to come into operation in 1961, and to cost Rs. 428 million—an increase of about 71 per cent over the original estimate.

17. The Ganges-Kobadak scheme envisaged pumping the Ganges waters near the Hardinge Bridge into canals for irrigating lands which could then be used for double and even triple cropping. The deteriorating Kobadak river was to be improved as a trunk drain, to be fed by a system of drainage channels, interlacing the irrigated area to regulate the water on the lands and reduce somewhat the effects of destructive floods. The canal banks were to accommodate surface transport, and the main canals and drains to provide for limited water transport. The scheme was designed to develop areas in the Kushtia, Jessore, and Khulna districts. The entire

Ganges-Kobadak scheme will irrigate about 2 million acres when completed. The Kushtia unit, which will irrigate 350,000 acres, is now well under way; the main canals have been excavated, and a field agricultural station has been established to obtain information on soil, plant and water relationships, and to educate the farmers in irrigation techniques. The power plant at Bheramara was completed in 1958, but due to various causes the installation of large-sized pumps was held up, with the result that the progress of the scheme was slowed down. In July 1959 an auxiliary scheme for installation of medium-sized pumps was sanctioned for completion towards the end of 1960, in order to accelerate the progress of the main scheme, and to supplement the capacity of the large pumps to be installed later.

18. The Teesta sub-project, comprising a diversion dam and canals, to serve as a pilot scheme, was abandoned as inadequate after an expenditure of Rs. 3·4 million had been incurred. Investigations have been taken in hand to determine the feasibility of constructing a barrage on the Teesta river. The new project, now under preparation, is designed to irrigate nearly 1·8 million acres at a cost of Rs. 377 million, and is scheduled for completion in 1967.

19. Only 5 out of the 50 experimental tubewells proposed in the First Plan were sunk. These wells have, however, furnished information upon which to base a larger programme. Most of the drainage schemes are far behind schedule, and lack of investigations and data has made it necessary to curtail their scope.

20. *West Pakistan.*—The multipurpose Warsak project on the Kabul river was designed to develop 160,000 kw at peak load, with necessary facilities for the installation of two additional units, each of 40,000 kw, if required. The project also provides, through two high level canals and high-lift pumps, for irrigation of about 120,000 acres, lying partly in the tribal areas. It is scheduled for completion in 1960 at an estimated cost of Rs. 293 million. The irrigation works are, however, behind schedule by nearly a year.

21. The Kurram Garhi scheme, originally expected to cost Rs. 43·4 million, is now estimated to cost Rs. 68·4 million. Of the expected 4,000 kw of power only 2,200 kw is being developed, and delays in settling the water rights have postponed the irrigation benefits.

22. The Taunsa, Gudu, and Kotri barrage projects, the three major irrigation works undertaken in West Pakistan since Independence, were planned to assure adequate and timely water supplies to the vast network of inundation canals taking off from the Indus, and to bring under irrigation a total area of 6·5 million acres. The Taunsa project has made satisfactory progress. In the Kotri project the water distribution and colonization work has been rather slow, but is now being speeded up. The Gudu project construction is behind schedule.

23. The Marala-Ravi link (Chenab to Ravi), and the Balloki-Suleimanki link (Ravi to Sutlej), connecting the three rivers, are designed to make up the chronic shortages in the Sutlej Valley canals. The chain called the Bambanwala-Ravi-Bedian-Dipalpur link has been constructed to simplify delivery problems on the various channels in the Central Bari Doab system. Recurrent flood damage and inadequacy of completed works to cope with storm flows have made it necessary to undertake additions and alterations before the links can be fully utilized.

24. Progress in tubewells, drainage, and reclamation has been disappointing. Since the inception of the tubewell programme as a measure to control waterlogging, 1,351 tubewells have been sunk under the Rasul scheme. Of an allocation of Rs. 137 million, only Rs. 60·7 million was spent.

25. The Bolan Dam project contemplated the construction of an earth dam and a canal distribution system to use the flood flows of the river Bolan in the Kalat division, and to irrigate an area of 24,000 acres. The dam was completed in 1958 at a cost of Rs. 3·4 million, but the water supply is not adequate to irrigate fully the area covered by the scheme.

26. An irrigation project on the Hub river, at the site of the old Bund Murad Khan, was designed to irrigate 4,000 acres of land around Karachi by sealing the bund and pumping the stored supplies. A sum of Rs. 7·6 million was spent on the scheme without commensurate benefits, because of inadequacy of water supplies. The project has been abandoned. Detailed investigations at a cost of Rs. 2·2 million have been authorised to determine the water potential of the Hub river and the possibilities of its exploitation.

Summary of First Plan experience

27. During the First Plan period, while there has been a substantial measure of success in the implementation of multipurpose projects, several schemes have not been executed speedily; progress in flood abatement and waterlogging and salinity control has been disappointingly slow. Experience during this period underlines the prime importance of careful preparation of projects, of sound appraisal of real costs and benefits, and of careful assignment of priorities and determination of the pattern of investment. Such comprehensive preparatory work was in many cases lacking in the past, because of absence of detailed surveys, investigations, and statistical data. Impatience and enthusiasm took the place of prudence and engineering judgment, leading to waste of scarce resources—finance, strategic materials, and technical manpower. In some instances costs were grossly underestimated and returns overestimated. In a number of cases, coordination between the various phases of the same project was indifferently effected.

28. The First Plan recommended the creation in each Province of a statutory semi-autonomous body for water and power development under the general control of the Government, but enjoying in full measure the flexibility and initiative of private enterprise. A Water and Power Development

Authority was created in West Pakistan in 1958, and in East Pakistan in 1959. The establishment of these authorities, together with the simplification of sanctioning procedures, improvement of budgeting, and the creation of a Projects Division to watch progress and identify bottlenecks, should greatly help to improve performance in the Second Plan period. International assistance in the form of technical aid and training can be secured, and the Second Plan provides for increased use of the services of specialists to supply the necessary guidance and technical know-how. This should considerably help to remedy the present shortage of technical manpower. The quality and coverage of data are being improved. In future it should be possible to make better estimates of construction and development costs, and of financial returns. Past shortcomings and unfulfilled expectations do not, therefore, imply that a comprehensive programme of water and power development in the Second Plan period will not be realisable.

Second Plan programme

29. The water and power development programme in the Second Plan covers a number of large and expensive projects, as well as numerous smaller schemes. Many of them have not, however, been subjected to full technical and economic appraisal; and it may, therefore, be necessary to change the composition of the programme in the light of further, more precise information. The objectives of the development programme, which should be regarded as a unity, remain broadly the same as in the First Plan, namely :

(*i*) to raise the productivity of existing agricultural lands through increased and rational applications of water, and the control of salinity and waterlogging ;

(*ii*) to increase farm acreage through irrigation, drainage, and flood regulation; and

(*iii*) to provide electric power cheaply and abundantly in order to accelerate and strengthen agricultural and industrial development.

30. During the Plan period, a number of major schemes of irrigation and protection of extensive areas will be completed. Large tracts of land will benefit from a multiplicity of small drainage, flood regulation, tubewell, and pumping schemes. It is estimated that in the final year of the Plan period, an additional area of 2·4 million acres will be irrigated for the first time, and an area of 7·1 million acres will be improved through depression of water table, salinity control and an assured water supply. The gross installed capacity of electric power will be increased from 905,500 kw to 1,414,000 kw and the energy generated will increase from 3·26 billion units to 5·63 billion units, raising the *per capita* consumption of electricity from 30 to 50 units.

Public sector investment

31. The proposed public investment in water and power development during the Plan period is Rs. 3,140 million. Of this outlay, Rs. 92·7 million is allocated to the Central Government's programme, with the balance of Rs. 3,047·3 million divided almost equally between East and West Pakistan. West Pakistan's allocation includes Rs. 27 million for development in the Frontier Regions, and Rs. 78 million for the Coastal and Desert Streams region. The Central Government's programme includes Rs. 46·5 million for atomic energy development, Rs. 20 million for Special Regions, and the balance for the Survey of Pakistan, the Meteorological Service, and on a network analyser.

32. Table 4 shows the proposed allocations to the major sub-sectors in the two Provinces and to the Centre.

TABLE 4

Programme of public expenditure on water and power development, 1960-61 *to* 1964-65

	East Pakistan		West Pakistan		Total	
	(Million Rupees)	(Per cent)	(Million Rupees)	(Per cent)	(Million Rupees)	(Per cent)
Investigations and surveys	66·1	4·4	76·6	5·0	142·7	4·5
Multipurpose development	784·4	51·6	6·1	0·4	790·5	25·2
Irrigation	87·7	5·8	349·6	22·9	437·3	13·9
Drainage, reclamation and tubewells	(*a*)	...	228·8	14·9	228·8	7·3
Flood regulation ...	245·5	16·2	64·7	4·3	310·2	9·8
Open canals	...	...	110·0	7·2	110·0	3·5
Power	288·1	18·9	662·4	43·3	950·5	30·3
Miscellaneous	47·3	3·1	30·0	2·0	77·3	2·5
Total ...	1,519·1	100·0	1,528·2	100·0	3,047·3	97·0
Central Government programme ...	...	...	...	...	92·7	3·0
Grand total				...	3,140·0	100·0

(*a*) Included under multipurpose development, irrigation and flood regulation.

33. Of the total allocation for water and power development, Rs. 1,042 million will be spent on schemes already in progress, Rs. 325 million in East Pakistan, and the balance in West Pakistan, and Rs. 2,098 million on new schemes. Broadly speaking, allocations to the various sub-sectors in the Second Plan, as compared with provisions in the First Plan, show an increase of 32 per cent for general investigations and surveys ; 8 per cent for multipurpose schemes; 67 per cent for drainage, reclamation, and tubewells; nearly 57 per cent for flood regulation; and 47 per cent for power. There is a decrease in the allocation for irrigation, because the major schemes in the programme are nearing completion. Expenditure on open canals, which was not included in the First Plan in accordance with the definition of development expenditure applicable at that time, is covered in the Second Plan under the new definition.

Private and semi-public sector investment

34. Private and semi-public investment in water and power includes Rs. 45 million by landowners in the various irrigation project areas on water courses; Rs. 15 million on tubewells and percolation wells, for which a subsidy is provided in the Plan; and Rs. 190 million by the Karachi Electric Supply Corporation—a semi-public concern—on power generation and distribution.

Investigations and surveys

35. Investigations, surveys, and research are the keys to effective and coordinated planning, and they must be continued over a long period of time. Inadequacy of data in the First Plan was one of the major obstacles to preparation and proper implementation of schemes. Collection of basic data, such as temperatures, rainfall, ground water levels, and stream flows deserves high priority. Knowledge of grain size distribution, porosity, field permeability, yielding ability of the soil formations, and direction of ground water flow is necessary for sound development of the underground water potential. Soil properties must be known to solve the problems of salinity, canal seepage, waterlogging, and rationalization of water applications for optimum agricultural production. Sound drainage design and layout is not possible without adequate information on soil structure and properties.

36. Detailed soil classification and surveys are needed to determine soil fertility, crop rotations, and suitable kinds of fertilizers, and the amount and manner of their use to suit the particular soil conditions. Each type of soil has its own characteristics and properties, physical and chemical, and requires its own special treatment and use; most soils, if well managed, can produce good yields. Soil classification and surveys have hitherto covered only a small portion of the arable lands of the country. Provision has been made for them in the agriculture programme. Detailed surveys, which may supplement the agriculture soil surveys, are envisaged also under the drainage and reclamation schemes. All the lands must be classified and surveyed as rapidly as possible. Research is necessary in soil, water, and plant relationships; the agriculture sector includes a suitable provision. Provision

has also been made in a number of irrigation and multipurpose projects—Ganges-Kobadak (Kushtia unit), Teesta barrage and Kotri barrage—for agricultural experiment and demonstration farms to determine these relationships and to educate the farmer in water application and crop-raising.

37. It is necessary to measure precipitation, rates of evaporation, canal losses, stream stages and flows, and the silt and mineral content of streams at key points in order to solve the complicated problems of flood control, navigation, irrigation, and drainage. It is also necessary to collect data relative to the location, nature, and magnitude of flood losses in order both to assess the need and to appraise the means of flood control. The number of existing rain-gauge stations in charge of the Meteorological Service will therefore be increased, and facilities will be installed for the collection of all relevant information over a larger field. A sum of Rs. 61·82 million has been provided for this purpose.

38. The Irrigation Research Institute, Lahore, needs reorganisation and expansion ; the provision made in the First Plan for that purpose was not utilized. A similar research institute, established in East Pakistan in 1948, also needs considerable expansion and strengthening. The facilities of the Central Hydraulics and Soil Mechanics Laboratory at Karachi have remained largely unused. A programme for expansion should be prepared. There is also need for the planned use of the existing facilities, and their enlargement as a means of determining the basic principles of river management. Great savings in costs could be effected as a result of research. A sum of Rs. 9·4 million is provided for these expansions and improvements at Dacca and Lahore.

39. For economy and coordinated planning, it is necessary to prepare detailed projects and estimates well in advance of construction. Promising specific projects must therefore be investigated and surveyed in detail so as to build up a portfolio of well-prepared schemes, and permit construction to be started on such schemes as are found feasible later in the Plan period. Detailed investigations, up to the feasibility report stage, are to be completed on the Teesta barrage project, the Tangon irrigation project and the Ganges-Kobadak project in East Pakistan. In West Pakistan, the Kunhar valley hydro-electric scheme is to be investigated in detail. Storage sites, alternative to Gomal Zam, in the Zhob-Gomal basin will be investigated for determining the feasibility of exploitation of the water resources of these streams. On the result of these investigations will depend the priorities to be assigned to any projects that may emerge. A number of other small schemes will also be investigated. A sum of Rs. 35 million has been provided for this purpose. To expedite the preparation of sound projects and a programme of resource development designed to meet the growing needs of the country, provision has been made for engaging, in addition to Pakistani specialists, the services of foreign management and consulting engineering firms with requisite experience to evaluate existing data and reports, undertake comprehensive investigations and surveys, and prepare specific projects as well as long-range integrated plans for

the development of water and power resources. Such services will also include training of Pakistani personnel, and help in evolving sound managerial and administrative procedures.

40. Altogether Rs. 142·7 million has been provided in the Plan for general investigations and surveys, an increase of almost two-and-a-half times the actual amount spent during the First Plan period.

Multipurpose development

41. For the development of multipurpose projects, the Plan provides a sum of Rs. 790·5 million, the bulk to be spent in East Pakistan. In this Province, multipurpose projects must aim at relieving drainage congestion, providing irrigation supplies, protecting land against unregulated stream and tidal flows, improving navigation, and where feasible developing hydro-electric power. Of the total allocation made in the Plan, Rs. 224·1 million will be spent on schemes already in progress, namely the Karnafuli, Ganges-Kobadak (Kushtia unit), and Warsak projects. It is expected that by the end of the Plan period an additional 100,000 acres will be irrigated and production from 250,000 acres increased through flood protection, drainage, and improved water supply. The ultimate benefits will be much larger. The completion of the Karnafuli project, with the possible addition of a third unit, will increase its electric generating capacity to 120,000 kw. The Karnafuli and Ganges-Kobadak (Kushtia unit) schemes will be completed, with an expenditure of Rs. 218·0 million, during the Plan period. Subject to proven feasibility, work will be started on the second unit of the Ganges-Kobadak project, which is estimated to cost about Rs. 490 million, and of which Rs. 120 million will be spent by 1965. The proposed Khulna multipurpose project is, in effect, the third unit of the Ganges-Kobadak Project. It provides for impoldering about one million acres of land in the southern part of the Khulna District, and for a supply of fresh water for irrigation within the polders from the Ganges through a canal taking off below the Hardinge Bridge. Definitive plans and an assessment of economic feasibility have not been completed and construction is scheduled in the later years of the Plan, subject to a favourable report. The Khulna multipurpose project is estimated to cost Rs. 329 million, of which Rs. 161 million may be spent by 1965.

42. Development of the Halda, Sangua, and Mathamuhuri basins of the Chittagong Hill Tracts, the Ganges-Brahmaputra doab, and the Brahmaputra multipurpose scheme are in the initial stages of consideration. The Brahmaputra project envisages diversion of 475 thousand cusecs of flood flow from the main Brahmaputra river into the Old Brahmaputra course. The latter will be dredged, and the flood water will be let into the Meghna through the three arms leading to Bhairab Bazar, Narsingdhi and Kalagachia. It is also proposed to revive the various dead spill channels, such as Sangshi, Banar and other Lakhya system rivers, by diverting part of the flood water into them. The project is expected to reduce the intensity of flood in the main river and irrigate 1·2 million acres during the dry

season. The hydro-electric potential of the project may be of the order of 87,000 kw. Navigation facilities will be improved by keeping open the waterways along various routes, now dead, to important centres of trade and commerce.

43. A sum of Rs. 30 million is provided for continuation of investigations and study of feasibility, and for starting construction on schemes for which economic and technical feasibility can be established.

44. The reclamation of *haor* areas is estimated to cost Rs. 150 million, of which Rs. 50 million will be spent during the Plan period. The Tipperah-Chittagong multipurpose scheme aims at serving navigation and irrigation, at an estimated cost of about Rs. 200 million. A sum of Rs. 10 million is provided for general investigations, and for starting construction late in the Plan period, if investigations establish the need and feasibility of the proposal.

45. In contrast to the humid East Pakistan, dependable flow supplies are always at a premium in the predominantly arid West Pakistan. In the Indus Basin, on completion of the Gudu Barrage, the unregulated river flows will have been fully committed, so that in the multipurpose pattern of West Pakistan, dams and storages must be built and operated for irrigation, reclamation and hydro-electric power. The development might help to mitigate flood damage until the river channels have deteriorated and need has arisen for corrective works. West Pakistan is faced with many difficulties and uncertainties. It will have to find alternative sources of supply for its irrigation now dependent on the eastern rivers—the Sutlej, the Beas, and the Ravi. Irrigation and reclamation requirements indicate the urgent need for new storage. Feasible sites are available, but the immediate resources do not permit exploitation of storage capacity beyond what is contemplated in the Indus Basin replacement works. A number of possibilities of multipurpose development exist in some of the less-developed parts of West Pakistan. Provision was made in the First Plan for investigations, surveys, and the preparation of detailed projects, but no projects have yet been formulated. Provision is made for such studies in the Second Plan. Provision has been made for the completion of the Warsak project.

Irrigation

46. The total amount allocated to single-purpose irrigation works in the Plan is Rs. 437 million, of which Rs. 274 million will be spent on schemes already in progress—the Kotri, Gudu, Taunsa, Thal, and Warsak canals. The total amount to be invested on irrigation is larger, because it includes substantial investment on multipurpose, drainage, reclamation, and tubewell schemes, and because of the inclusion of Rs. 110 million for open canals as a part of this programme. The implementation of the Rs. 437 million programme will make available by 1965 an additional irrigated area of 1·88 million acres of which 1·14 million acres will be covered by schemes already under way, and 740,000 acres by new schemes. This should make further increases possible later.

47. In East Pakistan, the Tangon project, on which investigations were started in the First Plan period, is scheduled for completion by 1965. It is designed to utilize the low heads of the Tangon and Koratoya rivers by means of three barrages and canals, ultimately irrigating about 154,000 acres in the Dinajpur district. A scheme comprising 300 tubewells and 80 small low-lift pumps for pumping surface water from local streams, all to be energized from a central diesel power station, is proposed for such high areas in the districts of Dinajpur, Rangpur, Pabna, and Rajshahi as cannot be irrigated from the Tangon or Teesta scheme. The scheme, which is estimated to cost Rs. 36·2 million, will irrigate an area of about 100,000 acres, and will be completed by 1965. Provision has also been made for about 16 small irrigation schemes throughout the Province. A large number of low-lift pumps to be operated by private persons will also be commissioned.

48. The irrigation programme in the Indus Basin comprises mostly schemes already in progress. On the Thal project, the work on colonization is behind schedule but is expected to be completed by 1965. In the Kotri project, work on colonization and the construction and remodelling of the canal network is under way, and is scheduled for completion by 1963. The Taunsa project was formally opened in March 1959, and the work on the distribution system will be completed during the Plan period. The Gudu project was to be completed in 1958, but has been delayed for various reasons. The headworks are now expected to be completed by 1962. Work on the canals and distributaries is already in hand. The Warsak canal system is now scheduled for completion in 1961. On completion of Warsak canals, which will utilize the regulated waters of the Kabul river, the Bara Nala water supplies will become surplus. The Bara canal scheme will use this surplus for the perennial irrigation of about 20,000 acres, and intermittent irrigation of an additional 40,000 acres. In addition to the flow irrigation projects, pump irrigation from streams and canals holds promise of opening up new areas. The Plan makes provision for a pilot pumping scheme on the Nara canal of the Sukkur barrage to irrigate 5,000 acres. Provision has been made for small irrigation schemes throughout the Province. These will comprise diversion bunds, electric and diesel pumping sets, and tubewells. Provision has also been made for subsidizing, through the Department of Agriculture, some 700 tubewells and 2,000 percolation wells to help promote intensive regional development where water conservation needs are more pressing. The Isplingi valley in Kalat division, having additional untapped ground water resources, offers opportunities for intensive development of crops and livestock through irrigation. Special attention will also be given to the development of the Porlai Basin.

49. The Frontier Regions, apart from benefiting from other irrigation and tubewell schemes undertaken in the Province, are allocated an additional Rs. 10 million to be spent on irrigation works suitable for their special conditions and requirements.

50. The Coastal and Desert Streams region suffers from lack of adequate information on local hydrology. Planned development in the area must

therefore await detailed investigations and collection of requisite data, for which a provision is made in the Plan. In addition, a provision of Rs. 14 million has been made for minor schemes, including tubewells, on the assumption that feasible schemes will be formulated.

Drainage, reclamation, and tubewells

51. Considerable increments in agricultural production can be achieved through drainage, reclamation, and tubewells. This programme is concerned with West Pakistan only ; East Pakistan's needs are covered by multipurpose development, irrigation, and flood regulation. In the Indus basin especially, lands have gradually deteriorated, and production has decreased, because of maladjustment of land and water resources, lack of adequate drainage, inadequate and unsound water applications, continuous mining of natural fertility, defective agricultural practices, and similar factors. Above all, the deterioration is attributable to the lack of adequate drainage, the consequent rise of the water table and the salinization of land. Salinity and waterlogging pose a serious threat to the national economy. It is estimated that over 50 per cent of the irrigated land is affected, an area of some 12 million acres. Control of salinity and waterlogging presents a gigantic problem ; the cost of drainage, creation of additional water supplies through storage, and revamping of the canal systems needed to deal with the problem effectively has been calculated to be as high as Rs. 25,000 million. Expenditures on this scale are clearly well beyond the resources of the country. In the circumstances, measures to control and depress the water table, and to reclaim the land, will have to be spread over several Plan periods. This is an unfortunate position, since the great urgency of counteracting the menace of salinity and waterlogging is incontestable.

52. Progress in implementation of the drainage programme in the First Plan period was slow. Detailed investigations and surveys have now, however, been undertaken over almost the whole of the basin. The Plan provides Rs. 103·2 million for drainage to be developed in practically every irrigation scheme area. About 1,000 miles of open drains are to be constructed —insufficient to meet total requirements, but large in comparison with achievements in the First Plan. The programme is given a high priority, and additional funds will be allocated if this is warranted by the rate of progress. Drainage of irrigated lands will need much sustained effort. Public cooperation and participation are indispensable in such ventures. Neither the resources of the Government nor those of the land-users are, by themselves, adequate to implement an effective drainage programme, but their combined efforts can succeed. The main and secondary drains should be provided by the Government ; the field drains, on the analogy of water courses, should be constructed, operated and maintained by the farmers and land-owners themselves. The Government will provide the requisite technical guidance. In the drainage of irrigated lands, group action is essential ; this can be mobilized through the Village AID Organization, or by creating semi-public organizations under Provincial laws.

53 Strategically located tubewells have been advocated as the principal method for solving the drainage and salinity problem. The argument is that through pumping, the water table can be depressed and controlled, and water so obtained can be utilized for leaching the salts below the crop root level and for irrigation. Eight reclamation schemes covering an area of 480,000 acres initiated in the First Plan were later incorporated into a single comprehensive salinity control and reclamation project. The scheme envisages drilling of 2,200 tubewells designed to serve an area of 1·6 million acres in the Rechna and Chaj doabs, to be completed in 1961 at an estimated cost of Rs. 68 million, excluding the cost of an electric distribution system. The Plan provides for completing the project, with an additional Rs. 30 million to be lent to the Soil Reclamation Board for providing physical facilities for the application of new and existing water and reclamation techniques efficiently. Tubewells, however, may not provide the complete solution, unless the conditions are ideal, which is rare. The solution of such problems seems to lie in providing both surface and sub-surface drainage, the latter combining in varying degree open drains, closed drains, and pumped wells. It is, therefore, necessary that the effectiveness of the programme under execution should be studied by a body of experts, before launching another substantial tubewell programme. Provisionally an additional sum of Rs. 40 million has been provided for similar tubewells in other suitable areas.

Flood regulation

54. Floods have occurred frequently, and with great severity, causing enormous losses and misery. It has been estimated that in East Pakistan alone in the three successive years 1954 to 1956, the rice area partially or totally damaged was of the order of 8·3 million acres. The corresponding loss in agricultural production has been put at 1·717 million tons, valued at Rs. 468 million. Enormous losses have occurred also in West Pakistan from time to time. Here the high embankments of the new link canals, cutting across the natural drainage, have aggravated an already bad situation.

55. A Flood Commission for East Pakistan was established in December 1955, and a Flood Control Board in June 1956. A United Nations Water Control Mission studied the flood control and water resources development problems of East Pakistan in 1956-57. In 1957 the Government of West Pakistan created the West Pakistan Flood Commission to prepare an integrated basin-wide flood control plan. For want of adequate basic data, however, no comprehensive flood control measures have so far been formulated in either Province.

56. The Plan provides a sum of Rs. 310·2 million for flood regulation, of which Rs. 56·37 million will be spent on schemes now under way. Almost four-fifths of this allocation will be spent in East Pakistan, where an area of 800,000 acres is likely to be improved. The work consists primarily of opening up congested channels, thereby decreasing the time of inundation of land, and providing for earlier agricultural activities. The programme includes

protective embankments and channel realignment to reduce damage to health and property from ponded water. East Pakistan's allocation of Rs. 245·5 million includes Rs. 35·27 million for schemes in progress. Five of a total of six large schemes will be completed during the Plan period : the Faridpur drainage scheme; the Feni sub-division flood reduction scheme; re-excavation of Ghungur, Salda and Buri Nadi in Tippera district ; strengthening of embankments of the Gumti river ; and dredging of the Gumti. East Pakistan will also complete a number of small schemes. It will further undertake new schemes, including the raising, strengthening, and construction of tidal embankments, draining of the Sadar sub-division of Noakhali district, flood regulation in the area between Surma and Kushiyara, improvement of the Manu river, resuscitation of the Ichamati river in the Pabna district, and a number of other schemes.

57. West Pakistan will complete the four schemes under execution—the Kot Hafiz Scheme, Bara and Chilla Nallah, rehabilitation of river bunds, and provision of mobile wireless sets to complete a flood warning system on the major rivers. The cost of this programme is Rs. 21·10 million. Another Rs. 43·60 million will be spent on new schemes, including a twenty-mile river bund near Kashmore, remodelling of Balloki barrage, detention dams in Dera Ghazi Khan, and provision for such further measures of flood control as may be recommended by the West Pakistan Flood Commission. In the Coastal and Desert Streams region, the streams are subject to flash floods, with peaks which are sharp but of low total volume. Such floods wash away the *bunds* constructed by cultivators to divert the flow to cultivable lands. Steps will be taken to build permanent structures both to control floods and to provide irrigation.

Open canals

58. West Pakistan has a network of canals, a large number of diversion works, and a growing mileage of embankments and drains. Considerable sums are expended annually on their extension, improvement, and replacement. This expenditure was not included in the First Plan. A sum of Rs. 110 million is provided in the Second Plan.

Power

59. The objectives of the power programme in the Plan are :

(*i*) to install additional generating capacity to meet increased power demand during the Plan period ;

(*ii*) to provide transmission and distribution facilities to meet the growing and diverse demands over large areas; and

(*iii*) to make a modest beginning with electrification of rural areas.

The Plan provides Rs. 950·5 million for power schemes in the public sector, Rs. 288·1 million to be spent in East Pakistan and the balance in West Pakistan. Of the total, Rs. 320 million will be spent on schemes already in progress. The Karachi Electric Supply Corporation is expected to invest Rs. 190 million during the Plan period.

60. *Generation.*—Compared with Rs. 392·7 million allocated for generation of power (excluding the share of the cost of public sector multipurpose projects chargeable to power) in the First Plan, Rs. 445·4 million is provided in the Second Plan: Rs. 275·4 million in the public sector, and Rs. 170 million in the semi-public sector. During the Plan period, the installed capacity will be increased by about 508,000 kw, an increase of 55 per cent over the capacity available in 1960. The new thermal stations included in the Plan are all based on indigenous fuels. By 1965 the total installed capacity will be about 1,414,000 kw, of which 1,126,000 kw, will be in public utilities and 288,000 kw in industrial establishments. Some of this capacity is likely to be retired due to obsolescence and uneconomic operation, depending upon the results of a factual survey of the condition of units and the growth of demand. On the assumption that some 142,000 kw (some 34,000 kw in East Pakistan, and 108,000 kw in West Pakistan) might be retired, the net installed capacity at the end of the Plan period will be 1,272,000 kw, of which 1,090,000 kw will be in public utilities and 182,000 kw in industrial establishments. Table 5 shows the comparative position at the end of the First and the Second Plan periods.

TABLE 5

Generating capacity at the end of the Second Plan period after possible retirements as compared with that available at the end of the First Plan period

(Thousand kilowatts)

	1960			1965		
	Public utilities	Industrial establishments	Total	Public utilities	Industrial establishments	Total
East Pakistan	103·2	72·0	175·2	216·0	81·5	297·5
West Pakistan:						
Indus Basin and Frontier Regions	490·3	122·0	612·3	670·3	52·0	722·3
Coastal and desert streams region ...	60·0	58·0	118·0	204·0	48·0	252·0
Total ...	653·5	252·0	905·5	1090·3	181·5	1271·8

61. Public utilities will account for 86 per cent of total capacity in 1965, as against 59 per cent in 1955, and 72 per cent in 1960. Public utilities using indigenous resources of fuel and water power will greatly expand in later years, and gradually displace industrial power, which is mostly based on imported diesel oil and coal. Because the load estimates vary there is no certainty that the available power will be fully used readily, although there is reason to believe that demand is rising sharply. The Government have initiated load surveys in the two Provinces on the basis of field data. The completion of these surveys should be expedited, and arrangements made to conduct power load surveys at regular intervals.

62. The energy generated is expected to increase from about 3·20 billion units in 1960 to about 5·63 billion units in 1965. The corresponding *per capita* consumption of electricity is expected to rise from 30 to 50 units. Low cost power supply is an important means of accelerating economic growth and improving social conditions. For this reason, improvement in the load factor and the formulation of sound electric tariff rates assume great importance.

TABLE 6

Increase of net installed power capacity by mode of generation, 1955-65

(Thousand kilowatts)

	Installed capacity in 1955	Installed capacity in 1960	Net installed capacity in 1965	Percentage increase or decrease during the Plan period
Public utilities :				
Hydro	62·7	250·7	382·7	52·7
Steam	67·7	312·8	612·3	95·7
Diesel	70·0	90·0	95·3*	5·9
Sub-total ...	200·4	653·5	1090·3	70·0
Industrial establishments ...	142·0	252·0	181·5	—28·0
Grand total ...	342·4	905·5	1271·8	40·3

*Includes 15,000 kw in dual-fuel plant to be installed at Karachi, which will start on diesel oil but operate on natural gas.

63. The hydro-electric and steam plant capacities in the public utilities will increase by 53 and 96 per cent respectively during the Plan period ; the diesel plant capacity will increase by 6 per cent only. The capacity in industrial establishments, which is all thermal (mostly diesel), will on the other hand decrease by 28 per cent, as a result of the expected cheaper power from the public supply (Table 6). Installed capacity in East Pakistan will increase by 156,000 kw, of which 120,000 kw will come from the Karnafuli hydro-electric station, and 36,000 kw from the Fenchuganj fertilizer plant. A sum of Rs. 15·3 million has been provided for the acquisition and modernization of a number of private electric supply undertakings. In the Indus Basin, an additional capacity of 202,000 kw will be installed in public utilities. Of this 57,000 kw will be contributed by Gujranwala hydel (12,000 kw), Sukkur thermal (30,000 kw) and Hyderabad thermal (15,000 kw) stations which were sanctioned in the First Plan period. Further additions during

the Second Plan period will accrue from possible extensions at Multan (130,000 kw), and Hyderabad (15,000 kw). An additional capacity of 150,000 kw is proposed in the public utilities of the Coastal and Desert Streams region during the Plan period. Of this 75,000 kw are from the extension of the Karachi 'B' steam station (60,000 kw) and from the installation of the 15,000 kw dual-fuel plant already under way. The balance will be from the proposed new steam stations at Karachi (60,000 kw), and Quetta (15,000 kw).

64. *Transmission and distribution.*—The Plan accords a higher priority to transmission and distribution of existing power than to generation of additional power, and provides a sum of Rs. 695 million for this purpose, as compared with Rs. 255 million provided in the First Plan. A number of regional grid systems with necessary distribution facilities is provided to serve all major load centres. The total length of transmission and distribution lines (11 kv and above) will increase from about 5,000 miles in 1960 to about 15,000 miles in 1965. The mileage by regions is shown in Table 7.

TABLE 7

Length of transmission and distribution lines in circuit miles (11 kv and above)

	Mileage in 1955	Estimated mileage in 1960	Estimated mileage in 1965
East Pakistan	45	600	1,500
West Pakistan :			
Indus Basin and Frontier Regions ...	1,300	4,300	13,200
Coastal and desert streams region ...	50	100	300
Total ...	1,395	5,000	15,000

65. In East Pakistan, the high-voltage transmission line connecting Dacca, Chittagong, and Karnafuli will be completed early in the Plan period, and will be extended further to Sylhet. A separate high-voltage grid will be established, with the interconnection of Goalpara and Bheramara thermal stations. These grids, along with extensive secondary transmission and distribution systems, will serve the major load centres throughout the Province. To accelerate the use of available power in East Pakistan by prospective industrial users, who experience considerable difficulties in the selection and purchase of electrical equipment necessary for the installation of power supply connections, the East Pakistan Water and Power Development Authority propose to maintain ready stocks of equipment for supply to consumers. For this purpose a sum of Rs. 25 million has been provided as a revolving fund.

66. The programme for the Indus Basin envisages completion in 1961 of the West Pakistan high-tension grid designed to interconnect Multan and Warsak power stations with the existing grid, which links up the power stations at Malakand, Dargai, Rasul, Daudhkhel, Shahdara, Chichokimallian, Lyallpur, and Montgomery. The primary grid will deliver power at ten primary load centres at Multan, Lyallpur, Sargodha, Daudkhel, Peshawar, Wah, Kharian, Montgomery, Rawalpindi, and Lahore. A secondary transmission and distribution system will then take the power from these centres and deliver it to 25 new distribution centres by 4,000 miles of transmission and distribution lines, at pressures varying from 400 to 132,000 volts. The cost of the system is estimated at Rs. 206·9 million. The system will also serve for possible future electrification of the main North Western Railway line. Funds have been provided for the distribution of electricity to ultimate consumers over a wide area. Separate grids with adequate distribution facilities have also been provided around Sukkur and Hyderabad to supply power to all adjoining towns and some villages from the proposed central thermal stations. Consideration of the interlinking of these grids with each other and with the northern grid, and ultimately with Karachi, has been deferred until more hydro-electric power becomes available and network analyser studies are made. During the Plan period, a new thermal grid will be constructed around Quetta to serve the local coal mines and other towns from a central coal-fired steam station. The existing distribution system in Karachi will be suitably strengthened and expanded.

67. *Electrification of towns and villages.*—Power facilities so far have been limited to the bigger and a few medium-sized towns, covering only about 10 per cent of the total population. All towns with a population of 25,000 and more (according to the 1951 census) and numbering 56 are electrified ; of the 186 smaller towns with a population range of 5,000 to 25,000, only 64 are electrified. Of 100,000 villages, with population less than 5,000, only 370 are electrified. The cost of electrification is heavy in rural areas because of lack of load density. Even in closely populated areas where it is possible to serve a large number of villages from a central station, the cost of electrification will be high. This is a task, therefore, which will take many years to accomplish. The proposed transmission and distribution systems to interlink power supplies and serve major load centres and tubewells makes it practicable to extend electric power benefits to villages situated along and near these lines, and in the proximity of bigger towns. It is calculated that with an outlay of Rs. 250 million, an additional 50 towns and about 2,000 villages can be electrified. A provision has been made in the Plan accordingly.

Machinery pools

68. Because of the greatly increased tempo of construction activity, and the huge size of many water and power schemes, machinery has come to be used on an extensive scale. In the interest of effective maintenance, reduction in stocks of spare parts, training of operators and mechanics, and improved

efficiency in construction, it is necessary to standardize equipment, and provide workshop facilities on an adequate scale. To ensure effective and economic use of equipment, an inventory of all that is available must be maintained, and suitable log and record books to watch the working of each piece and efficient accounting to maximize the returns, should be introduced. An amount of Rs. 60 million, in the nature of a revolving fund, has been provided for this purpose, Rs. 30 million in each Province.

Dredger fleet

69. East Pakistan has a dredger fleet comprising one old and 20 new dredgers. A central floating workshop to carry out repairs and maintenance is functioning, and a small slipway is under construction. To operate the fleet at maximum effectiveness and economy, there is need for a shore workshop, modifications in the existing fleet, and provision of additional equipment and accessories. Foreign specialists need to be recruited to operate the fleet and to train technicians in the country. A sum of Rs. 9·8 million has been provided to meet these needs.

Atomic energy

70. Atomic energy development is allocated Rs. 46·5 million. This should make possible :

(*i*) continuance of the programme of training of nuclear scientists and engineers ;

(*ii*) intensive training over extended periods of selected scientists and engineers of outstanding ability and merit ;

(*iii*) exploration for radio-active minerals in Pakistan ;

(*iv*) establishment of an Institute of Nuclear Research and Reactor Technology with a swimming pool research reactor (1 MW—5MW) at the headquarters of the Atomic Energy Commission ;

(*v*) establishment of a nuclear accelerator of 10—15 Mev in East Pakistan ; and

(*vi*) establishment of a suitable number of medical and agricultural centres in the country using isotope techniques.

71. The reactor will be used for training scientists and engineers, and to produce isotopes for biological, medical, and industrial research. The research effort will be directed towards theoretical and experimental studies of reactor design, component and metallurgical testing, intensive studies in nuclear chemistry, and investigations in fundamental nuclear physics. The isotopes produced by the reactor and the accelerator will be used for radio isotope therapy, for sterilization of crops, and for breeding hardier mutations of crops. In order to secure the maximum advantage from the

programme, a suitable number of medical and agricultural centres will be set up in both East and West Pakistan in consultation with the Health and Agriculture Departments.

Meteorological Service

72. The Meteorological Service observes, collects, and disseminates information on rainfall, floods, temperatures, winds, hailstorms, snow, ice, and humidity. The value of the information depends on its representative character, which is conditioned by the extent of coverage of the observations. At present there are about 122 surface meteorological stations, 22 pilot balloon stations, and 3 regional meteorological observatories. To improve the coverage the number of meteorological observatories and pilot balloon stations will be increased during the Plan period. A provision is made for the installation of hydrogen plants in both the Provinces. Arrangements for radiosonde and rawinsonde observations exist at some stations; the Plan provides for the installation of similar instruments at all international airports in the country. The equipment at all aerodrome observatories will be modernized, in accordance with the standards laid down by the International Civil Aviation Organization and the World Meteorological Organization, to facilitate jet aircraft operation. An accurate time signal service, to serve also other countries of South East Asia and the Middle East, will be provided. The geophysical organization for survey and study of seismic, geomagnetic, ionospheric, and atmospheric physics parameters established at Quetta will be further expanded and strengthened. Laboratory and workshop facilities of the Service will be improved and expanded, and new equipment will be installed for the design, testing, maintenance, and repair of the various types of instruments required. A meteorological workshop and laboratory will be established in East Pakistan. The number of hydro-meteorological observatories and rainfall stations will be nearly doubled during the Plan period. Such observatories will be set up in both the Provinces, and will cover areas for which at present inadequate data are collected.

Survey of Pakistan

73. The Survey of Pakistan, which is responsible for the survey of the country and the preparation and maintenance of topographical, geographical, and special-purpose maps, needs expansion to meet the growing civil and defence needs. The Plan makes provision for the Survey to procure the needed equipment, instruments, and facilities. A mathematical instruments office will be set up to make and repair the delicate instruments used in the work of the Survey; in time this office should be able to supply most of the demands of mathematical instruments of government departments, universities, colleges, and other organizations. The existing facilities at the photogrammetric and geodetic offices of the Survey will be modernized and expanded. An air photographic agency will be set up, since aerial photography can make an important contribution to the topographical mapping of the country, which is particularly essential for the development of water and power schemes.

Requirements of personnel and key construction materials

74. Lack of adequately trained personnel in sufficient numbers has been one of the major obstacles in the way of the implementation of the development programme. There has been a shortage of engineers required to carry out even the normal departmental duties. There is a clear need for assessing the firm requirements of technical personnel for the execution of programmes.

75. Approximate estimates of quantities of key construction materials required during the Plan are : steel, 190,000 tons ; cement, 1·9 million tons ; and coal, 200,000 tons. More careful preparation is required than has been the case in several instances in the past of schedules of requirements of materials at the time of formulation of projects. Also more timely procurement action is needed to ensure delivery of the material to meet construction schedules.

CHAPTER 9

INDUSTRY

INDUSTRIAL development is important not only because it supports and stimulates progress in other sectors of the economy but also in its own right as a major factor in raising national income, in improving the balance of payments position and in providing gainful employment.

2. In the present stage of economic development of the country, the highest priority must of necessity attach to agriculture. Nevertheless, agriculture depends heavily on industry in such matters as supply of implements, fertilizers, and equipment needed to handle and transport agricultural produce, processing of agricultural products, and provision of manufactured materials required for the development of associated facilities such as irrigation and drainage. In the development of other sectors of the economy, such as power, transport and communications, industry has a recognized and vital role to play. Thirty-five to forty per cent of the increase in national income during the First Plan period was contributed by industry.

3. The impact of industrial development on the balance of payments position is of particular importance. The country today is heavily dependent on a few primary commodities for its foreign exchange earnings. More than one-half of its total exports are provided by raw jute and raw cotton. Foreign exchange earnings are thus extremely vulnerable to fluctuations in demand and in the prices of these commodities. Such fluctuations have grave repercussion on the level of economic activity and on the implementation of the development programme, which depends very greatly on imports of manufactured goods. During the last decade there has been a persistent decline in prices of primary commodities and a steady rise in prices of manufactured goods. The result is that to pay for its imports the country must now export twice the volume of goods required to be exported on the terms of trade prevailing ten years ago. To make Pakistan less vulnerable to such tendencies in future, there is imperative need for diversification of the economy through industrialization.

4. A beginning has been made in this direction with cotton and jute manufactures. Pulp and paper manufactures are on the threshold of contributing towards the improvement of the foreign exchange position, and processed hides and skins should, in the Plan period, earn more foreign exchange than raw hides and skins. Nevertheless, without replacement of imported consumer and producer goods through indigenous manufacture, it will not be possible to pay exclusively from exports for increasing imports necessitated by internal requirements. More or less complete replacement of imports has been shown to be practicable in the case of jute goods, cotton and woollen textiles, sugar, paper, newsprint, cardboard, cigarettes, bicycles, sewing machines, cycle tyres and tubes, and a large number of engineering and electrical products.

5. Under-employment and unemployment are other serious problems towards whose solution industrialization can make an appreciable contribution. The heavy pressure of population on land, together with the steady increase in population, require that substantial opportunities for employment be created outside of agriculture.

6. Industrial development must be viewed as part of the long-term process of continued economic growth. This is important not only because factories and institutions built now will be operating for many years to come, but also because whatever is done or left undone now will determine to a great extent what can be achieved in later years. The present indications are that in twenty-five years' time requirements of machinery and equipment for agriculture, industry, transport and communication and power development will almost certainly be at least ten times what they are today. During the same period it appears that national income can be more than trebled and *per capita* income more than doubled, if industrial output is increased by appreciably more than three times its current levels. While industrial planning must take into account and alleviate the present shortages of goods required to meet immediate needs, the ground must also be prepared now for production of all types of machinery, tools and equipment, and of basic metals needed as raw material for producer goods. The country's large reserves of natural gas provide the raw material necessary for a wide range of petro-chemical industries. Planned exploitation of these reserves should contribute substantially to the growth of the national economy. Technical education and training must be accelerated with a view to developing industries, notably those which require a high degree of skill.

Achievements since Independence

7. Industrial progress since Independence has been impressive, revealing a degree of managerial and entrepreneurial ability which was wholly unsuspected. Production in large scale manufacturing industries increased five-fold from 1950 to 1959. A number of industries have been developed from almost nothing or are entirely new, including cotton spinning, jute manufacturing and production of woollen and worsted goods, art-silk fabrics, vegetable oil and ghee, cigarettes, matches, leather and rubber goods. Cotton and jute manufactures have not only brought the country from a position of complete dependence on imports to near self-sufficiency with respect to these goods, but also are earning substantial foreign exchange through exports. Production of white sugar increased by seven times, and of cement by almost four times between 1948 and 1959. Recently, factories producing fertilizers, dyes, DDT, penicillin, paper and cardboard have come into full operation. Steel re-rolling mills have been established, and a number of small and some large firms produce a great variety of engineering and electrical engineering products. By and large, however, industrial development so far has been dominated by the growth of consumer goods industries.

8. An allocation of Rs. 3,215 million was made to industries in the First Plan, Rs. 1,480 million in the public sector and Rs. 1,735 million in the private sector. Actual investment is estimated to have been Rs. 750 million

in the public sector and Rs. 1,100 million in the private sector. Foreign exchange difficulties which began in the latter half of 1952 were accentuated during the First Plan period. These difficulties resulted in severe restrictions on import of raw materials, spares and accessories required for industrial operations and were largely responsible for shortfalls in planned investment. Despite the limitation of foreign exchange availability, production in large and medium scale industries in 1959 was more than 80 per cent higher than in 1954. The Plan expectations were a rise of 65 per cent only. This remarkable performance reflects the adaptability and resourcefulness of the country's entrepreneurs. In 1959 the progress was particularly strong, due partly to additional incentives, notably the export bonus scheme. Many important industries such as cotton and jute manufacturing, paper, cement, fertilizers, sugar and cigarettes worked to capacity or nearly so in 1959-60. In the public sector, the Pakistan Industrial Development Corporation (PIDC) played a decisive role in the industrial development of the country by establishing a number of complicated and large-scale basic industries. These included jute mills, paper, newsprint and board mills, fertilizer factories and plants for production of DDT, penicillin and dyes. This pioneering task performed by the Corporation inevitably involved some unexpected costs and occasional disappointments, but it gave a fillip to industrial activity which is now bearing fruit. The principal limitation on the development of the private sector was the shortage of foreign exchange. There has been a tendency in the past to let private industry bear the brunt of cuts in foreign exchange allocations. As a result, the operating efficiency of many private concerns was seriously hampered. Controls over privately operated industries remained cumbersome; too many permissions were required from too many uncoordinated authorities ; and assistance in the provision of such facilities as land, power and communications was not too readily forthcoming. But for these disabilities and particularly the shortage of foreign exchange, private industry would have developed still more rapidly. On the other hand, fiscal and other incentives provided by the Government helped to speed up industrial development, although there was a tendency (which still persists) in some industries towards overcapitalization and also, perhaps inevitably, towards concentration of interest on industries of "get rich quick" variety.

9. Much less progress was made in small and cottage industries. There is no reliable information about the very large number of small units, scattered all over the country but signs of marked progress are rare. Good supplies of cotton yarn in the beginning of the Plan period made possible a large increase in handloom weaving, but towards the end of the period shortages of yarn caused a set-back. A fairly ambitious programme for support of small scale and cottage industries was included in the Plan but little was, in fact, done.

Criteria for industrial development in Second Plan period

10. The precise composition of the industrial programme in the Plan period cannot be determined in advance. It will depend, amongst other

things, on trends in international trade, on raw material availabilities and price movements. The Government intends to let the industrial pattern respond to market prices, not to trammel it by prescribing a rigid plan for industrial development. Nevertheless, it is important to establish what industries can best be developed, and to indicate where the national interest appears to lie. The criteria used in drawing up the Second Plan and in determining which new industries should be established or which existing industries should be expanded are set out below. The order of presentation is, however, not to be taken as indicating any order of priority.

(i) Industries have been favoured which are expected to make the largest net contribution to national income per unit of investment. Indirect effects on income arising from purchases of goods and services from other industries or sectors have also been considered in applying this criterion.

(ii) Industries have been preferred which result in net increases of foreign exchange earnings per unit of investment, taking into account the foreign exchange needed to establish the industry and the cost of fuels and raw materials which will have to be imported, or which, if not used in the industry, will be exported. Similarly, priority has been given to industries which can produce goods which replace imports and save foreign exchange

(iii) Preference has been given to industries which use indigenous raw materials which otherwise would be under-utilized or wasted.

(iv) Provision has been made for industries which are expected to become important to the economy in the future even though their immediate contribution to income and employment per unit of investment may not be large; for example, industries which produce certain types of producer goods which will have the effect of reducing the import component of future development expenditure.

(v) Consumer goods industries which produce necessities have been preferred to those which produce non-essential or luxury items, even in cases where the latter may be very profitable.

(vi) Although fuller utilization of existing industrial capacity has in general been given preference over creation of new capacity or the establishment of new industries, in some cases complete utilization of capacity has not been aimed at because of large recurring foreign exchange costs, or insufficient demand for the products, or poor management and organization of existing units, or comparative non-essentiality of the goods produced.

11. It will be seen that the complexity of the problem of industrial development does not permit the application of any simple criterion such as preference of heavy or producer goods industries over light or consumer goods industries. It is necessary, however, that in view of the long-run requirements, increasing importance should attach to producer goods industries, and appropriately high targets have been set for development of such industries. At the same time a substantial proportion of the development expenditure in industry has been allocated to essential consumer goods industries like food manufacturing, cotton textile and pharmaceutical industries, to alleviate present shortages and meet increasing demand

But very little weight is given to non-essential new consumers goods industry; and in line with the need for austerity, expected demand for a number of consumers items is not to be met in full.

12. The strategy of the Plan is to encourage rapid growth of certain selected industries both through provision of liberal facilities to private industry and through public investments where necessary. At the same time emphasis is placed on measures which yield quick results, notably through mobilization of existing skills and entrepreneurial spirit amongst private business men. To achieve this end provision is made for modernization and expansion on a modest scale of several existing industries.

Policies and methods of implementing the industrial programme

13. The Plan follows certain priorities in deciding how much and by what methods to increase output of different industries. It also indicates certain policies with respect to the relative importance of large and small scale industries, the location of industries, the choice between public and private enterprise and the encouragement of private industry. These are discussed below.

14. *Increase of industrial output.*—First priority is given to better utilization of existing capacity. To achieve this, it will be necessary to supply more raw materials, spare parts, power and other inputs to industries which because of such shortages have been operating below capacity. Provision has been made in the Plan for substantially increasing the total import of raw materials, fuels, and spares. The supplies to individual industries will be increased to the extent that expansion of production seems desirable or necessary. But other less obvious steps aiming at higher productivity in the use of capital and manpower are equally important. Full and efficient utilization of capital equipment will have priority over saving of manpower, but such utilization is only possible through the use of better-trained manpower. Measures to improve managerial and technical skills, to strengthen industrial schools, and to provide training-within-industries will be undertaken. More stress will be placed on use of consultants in overhauling industrial operations. A necessary condition for the success of this approach, however, is that the less efficient of the existing units shall either be improved and consolidated or be eliminated.

15. Second priority has been given to balancing installed equipment, in some cases in individual units, but in others within the industry, by selective investments. There are many industrial units where production can be substantially increased through fuller utilization of the installed capacity if some additional investments are made.

16. Third priority has been given to modernization of existing units, where this permits better use of managerial talent, human skills, and available installations. This implies that modernization will not be attempted in cases where the units, apart from being inadequate technically, are also badly managed and operated by poorly trained workers. The aim of modernization will be to make production more efficient, to encourage specialization and manufacturing of new products, and to improve quality.

17. Where the possibilities of expanding production without extensive investments are not present, expansion will be aimed at either through establishment of new units or through extension of existing units. In certain industries, however, existing units are poorly managed and of a low technical standard, although their capacity at least theoretically is adequate to supply existing markets. In such cases it will be necessary to encourage new units in order to stimulate improvements in the industry as a whole. In other cases, where one single or a few firms hold a dominant position in the market, establishment of other units may be appropriate to stimulate competition, if other economic considerations so permit. In the choice between expansion of existing units and establishment of new units, a number of factors have to be taken into account. Expansion of existing units often will have economic advantages, which may well be outweighed by advantages of locating new units closer to the market or to raw material resources, or in poorly developed areas. Nevertheless, paucity of trained personnel and heavy investment in overheads will in many cases necessitate emphasis on expansion of existing units even where new units may have other perceptible advantages.

18. *Relative importance of large and small scale industries.*—Consideration has been given in the Plan to the choice between large, medium sized, and small units. The assumptions of the Plan are that new, small and medium sized industries will be encouraged ; that sub-contracting—which implies that some large scale industries will buy systematically from smaller units—will be fostered ; that small industries with prospects of advantageous development will be assisted, but that the aim will be not to perpetuate an uneconomic structure. The need for the most economic use of development resources in the country is so strong that resources cannot be wasted by promoting at all costs an industrial pattern dominated by small enterprises.

19. Limitations are imposed on the rapid expansion of small and medium-sized industries by market considerations, and by shortage of technical and managerial skills. That investment per worker is low in small units is true of village and cottage industries with limited growth prospects, but not of the great numbers of small units which will be required in a rapidly growing economy, like repair and small manufacturing shops. Even where investment per worker is low, investment per unit of output may be as high as, or higher than, in large scale industries. Finally, small units have certain inherent social disadvantages such as low wages, primitive working conditions, and insecurity of employment. Nevertheless, in a country like Pakistan with a vast unemployed or under-employed population, there are countervailing social advantages in spreading industrialization through small units. The Plan, therefore, introduces a series of positive actions, discussed later in this chapter, which should facilitate the growth of small and medium sized units. Where modern technology and large scale operations are not dictated by overriding technical and economic considerations, choice has been made in favour of small and medium sized units. Scope has been provided

for expansion of industries where the capital-output ratio is low, or where much labour will be employed, or where expansion can as easily take place in small or medium sized units as in large ones. It is assumed that nothing will be done, on narrow social considerations, to prevent small and medium sized units from growing bigger; this is how successful industrial enterprise has developed in industrialised countries. The reservation of some sectors of industry or some products for small units will place obstacles in the way of larger units, and must be made only with utmost care.

20. *Location of industries.*—During the past few years, establishment of industries in Karachi has been severely restricted, and expansion has not been welcomed in certain districts of West Pakistan. The effort has been to establish industries in areas where little or no industry exists. The effect of these limitations has been to discourage industrialization in those areas of the country, notably the large industrial centres, where new investments will become most fruitful, at least in the short run. These limitations will need to be relaxed, and location of new capacity encouraged in all suitable areas. In this context it will be of advantage to provide the establishment of industrial estates in centres where the transport system, water and power resources, and availability of raw material and potential markets offer suitable opportunities. Apart from the large centres, effort will be made, notably through the small-scale industry programme, to encourage smaller centres for industries which mainly supply local markets. Close cooperation will be necessary between authorities responsible for industrial planning and those dealing with urban and regional physical planning, in order to promote the dispersal of industries in suitable locations.

21. *Choice between public and private enterprise.*—It is a basic assumption of the Plan that for the implementation of the industrial development programme, reliance will be placed primarily on private enterprise. This assumption has been made not so much to reduce the burden on public finance as in recognition of the fact that private enterprise has a key role to play in the economic development of the country. Already the development of many industries is directly attributable to private enterprise. During the Plan period the private sector is expected to expand more rapidly. For such expansion, a favourable climate now exists in Pakistan, and conditions are now present for increased private investment, both indigenous and foreign. Price and distribution controls have been relaxed, and this trend is expected to continue. Incentives have been provided to stimulate production and exports. Incentives offered to foreign investors have been liberalized. Investment treaties and double taxation avoidance agreements calculated to promote private investment have been concluded with a number of countries. Local private enterprise has now acquired a measure of experience and know-how which qualifies it to expand its operation either independently or in collaboration with foreign investors.

22. In several sectors of industry the choice may well arise between public and private enterprise. The cardinal principle is that there should be no public industrial sector in the sense of reservation of complete industries

for public enterprise, but that the Government should remain generally responsible for promoting all industries by providing the required facilities, and should directly participate only in those enterprises which are essential for over-all development and where private capital is not forthcoming or high considerations of national security intervene. Where the Plan provides for public investment in industry, it assumes that on present indications the Government must initiate development of certain industries because private investment is not available. At present there is reason to believe that private capital may not be forthcoming in required measure to ensure a satisfactory industrial growth in East Pakistan, and some important industrial ventures in West Pakistan also may have to be started by the Government. The PIDC will, in such cases, take the initiative. In doing so the Corporation will, to the maximum extent possible, associate with itself such private enterprise as may emerge. The charter of the Corporation enjoins it to divest itself, at the opportune time, of its investment in the undertakings that it promotes. This policy of disinvestment in projects for which competent private enterprise offers itself will be continued. It is strongly recommended, however, that should at any time private enterprise be found ready and capable of undertaking any or all of the industrial investment indicated in the Plan for the public sector, there should be no hesitation in allowing the private sector to do so. Investments shown in the public sector are not excluded from the scope of private enterprise, either national or foreign, for the development of industries during the Plan period.

23. *Proposals for the encouragement of private enterprise.*—Freedom and opportunity for private enterprise are, however, not synonymous with unplanned growth. The following measures are recommended for the guidance and encouragement of private industries within the framework of the Plan :

(*i*) The recently created Investment Promotion Bureau will need to be developed into an effective clearing house for all problems which investors may face. The Bureau is designed to disseminate information on investment opportunities and conditions in Pakistan and offer advice and guidance to investors ; and to help private investors in obtaining import licences, land, building materials, technical help or advice, and any facilities for which the approval or assistance of the Central or Provincial Governments or statutory bodies is necessary.

(*ii*) Obstacles to new investment will need to be further reduced. A beginning has been made through the Industrial Investment Schedule (published in February 1960) with freeing investment in identified directions from the need for obtaining prior government sanction, if the foreign exchange component of the investment can be obtained from the Pakistan Industrial Credit and Investment Corporation or from export bonus earnings. The procedure for foreign private investment has been simplified. Further Industrial Investment Schedules within the framework of the Plan will need to be published periodically in the light of national requirements and investment trends as they develop during the Plan period ; the aim will be to exempt as much investment as possible from the sanctioning procedures.

(*iii*) Industrial legislation will need to be rationalized for facilitating planned growth of industries, governmental regulation being concentrated on achieving an orderly growth of industries under socially acceptable conditions, and on resolving such conflict as may arise between individual interests and national priorities.

(*iv*) The use of price control will need to become an exception, emphasis being placed instead on increased production and more vigorous competition as a means of keeping prices at a reasonable level.

(*v*) Controls on the import of machinery and raw materials will need to be further simplified, and where practicable, specified machinery and raw materials freed from import restrictions. The volume of imports may be regulated by a system of import surcharges or other fiscal measures.

(*vi*) Exports will need to be further facilitated by suitable incentives. This is a continuing requirement.

(*vii*) Financial institutions will need to be strengthened to stimulate private industrial development, small industries being encouraged to avail themselves of cooperative credit facilities where feasible. A special programme of credit facilities will be inaugurated to this end.

(*viii*) The Government, in association with private enterprise and talent, will need to continue the provision of technical training, scientific and industrial research, services of expert consultants, and collection and compilation of statistics.

(*ix*) Special attention will need to be given during the Plan period to the preparation and publication of national standards by the Pakistan Standards Institution. The use of these standards will discourage the production of sub-standard goods for the domestic market, and will promote the acceptance of Pakistan products in foreign markets.

24. *Training and research.*—Training is imperative for successful industrial development. The Plan proposes the strengthening of vocational schools, and promotion of technical training within industrial units, private as well as public. Institutes for technical education will be strengthened with emphasis being given to the improvement of existing institutes. During a transitional period students from regions with no suitable educational institutions will be given grants for travel and subsistence, from private and

public sources. Special emphasis will be laid on training and education for management. Suitable courses in business management will be introduced in at least one university in each Province. For the training of existing management, the Government will support private efforts to establish an institute for management which will organize training programmes and research into specific management problems. Industry will be given more facilities for training personnel abroad.

25. Promotion of science and technology on a broad basis must be an integral part of any sound plan for the effective utilization of the natural and human resources of the country. In the industrial field, the need is for research in the nature and use of raw material resources, and for development of new products, processes, and improved techniques for the most economic use of these resources. Some useful work in this direction has already been done by the Council of Scientific and Industrial Research, and a number of new processes have been developed to a stage where they are ready for commercial exploitation*. Private enterprise will be encouraged to develop commercially the processes evolved. Present activities in scientific and industrial research will be expanded, where possible in association with private firms which are expected to help finance research of special interest to them. While a number of research institutions relative to industrial and other fields have been established in the country in recent years, scientific research does not occupy the place it deserves in the deliberations of the Government. There is need for coordination without administrative centralization, of scientific research under a single Ministry, preferably the Ministry of Education. A Scientific Commission was established by the Government in 1958 to study this question ; its report is still awaited.

26. The importance of technical and advisory services for the preparation of economically and technologically sound projects and for improving productivity, particularly in the private sector, cannot be over-emphasised. For this purpose it will for some time be necessary to employ foreign industrial consultants, but this can only be a temporary expedient. The Government will need to provide the necessary foreign exchange facilities, while encouraging the development of private industrial consultant and advisory services in the country. The Pakistan Industrial Technical Assistance Centres at Karachi and Lahore are already doing much useful work to promote productivity. The Industrial Research and Development centre, already sanctioned for East Pakistan, will be set up during the Plan period. To supplement research and advisory services, information on the latest technical discoveries and industrial developments taking place in foreign countries should be systematically collected, assessed and disseminated within the country. Assistance will be given to libraries, scientific institutions and other public and private agencies which engage in this work.

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*See the Council's quinquennial report, 1953-58 for details.

Cost of the development programme

27. The Plan provides for an investment of Rs. 4,050 million in industry, of which Rs. 920 million in large scale industry and Rs. 250 million in medium and small scale industry will be government-financed. The geographical breakdown of public expenditure is given in Tables 1, 2 and 3.

Development plan for selected industries

28. Four types of industries exist at present in the country : (*i*) the traditional village industries which generally cater for a limited local demand, but whose products in some cases are marketed on a country wide basis and even abroad ; (*ii*) organized industries using no power but employing a considerable number of workers sometimes in their homes, and sometimes in factories ; (*iii*) organized industries using power and modern equipment and technology but employing a limited number of workers ; these include repair shops for machinery, agricultural implements and transport equipment ; and (*iv*) industrial undertakings employing substantial capital, using modern machinery and technology, and producing substantial quantities of consumer or producer goods.

29. The development of any one of these types of industry cannot be viewed in isolation. It is necessary, however, for purposes of planning and administrative convenience to simplify the categories. In the Plan, therefore, industries are classified into three categories according to size : small scale, medium scale, and large scale industries.

30. Small scale industries include those engaged in the production of handicraft, consumer or producer goods,

(*i*) employing manual labour without use of any motive power, or

(*ii*) using motive power but employing not more than 20 persons or using fixed assets valued at not more than Rs. 100,000.

Medium scale industries are those not covered by the definition of small scale industries but with fixed assets of a value not exceeding Rs. 1 million.

Large scale industries are those using fixed assets of a value of more than Rs. 1 million.

31. It is not practicable to give here an exhaustive account of all the industries that will be developed during the Plan period. Nor is it realistic to give detailed breakdowns of investment and production targets between small, medium and large scale units for each industry. The pattern of development cannot be frozen by a rigidity of classification of investment targets. Nor can emphasis on any particular category of industries be allowed to hinder fulfilment of targets of production. Separate targets of investment or production for any one category of industries would be inconsistent with the prime objective of achieving the maximum production, and are accordingly not stipulated in the Plan.

32. A number of important investigations into the industrial potential of the country are at present in progress. Consultants have been appointed to survey the prospects and prepare detailed projects for petro-chemical industries based on natural gas ; and the possibilities of gas liquefaction are under examination. A firm of industrial consultants is carrying out a detailed survey of possibilities of industrial development in East Pakistan, where private investment has been small and development prospects are either not fully known or have not been fully exploited. In West Pakistan investigations for an integrated steel plant are in progress with the assistance of the United Nations Special Fund and also of private consultants. The results of these surveys and investigations may substantially affect the present plans for the development of certain industries, and may also necessitate a readjustment of the proposed investments during the Plan period.

33. Subject to the above qualifications, the following sections furnish a broad picture of the existing position and the prospects, as at present seen, for the development of certain selected industries. Information about the investment targets (classified into the public and the private sector) for major industry groups and some individual industries is given in Table 5 at the end of this chapter. Table 1 summarizes the position by major industry groups and by their location in different regions of the country. The tables follow the international classification of industries, which is also observed by the Central Statistical Office in its census of manufacturing. This classification is not strictly comparable with that used in the First Plan. The text follows, in general, the tables, with the exception that some smaller industries are treated together under a common heading.

TABLE 1

Expenditure on industrial development during the Second Plan

(Million Rupees)

Industries group	Government-financed				Private investment				Total investment
	East Pakistan	West Pakistan	Karachi	Total	East Pakistan	West Pakistan	Karachi	Total	
Food manufacturing ...	60	...	...	60	164	133	18	315	375
Beverages	...	...	...	...	2	2	...	4	4
Tobacco manufactures ...	...	...	...	...	5	10	5	20	20
Textile manufacturing ...	100	...	...	100	386	163	79	628	728
Footwear and apparel ...	...	...	...	...	4	4	2	10	10
Manufacture of wood and cork	...	...	...	...	5	3	...	8	8
Furniture	...		...	...	...	2	...	2	2
Pulp, paper, paper products	41	...	...	41	17	5	...	22	63
Printing and publishing ...	2	3	...	5	6	11	8	25	30
Leather and leather goods ...	...	...	...	...	15	9·5	0·5	25	25
Rubber products	...	...	...	...	1	1	10	12	12
Chemical industries ...	203	165	...	368	37	118	26	181	549
Petro-chemical industries ...	...	15	...	15	...	63	155	218	233
Non-metallic mineral products	20	16	...	36	23·5	136·5	79	239	275
Basic metal industries ...	55	38	90	183	50·5	14·5	114	179	362
Metal products (excluding machinery)	3	...	2	5	16	23	9	48	53
Machinery	4	2	...	6	35	51	3	89	95
Eleatrical machinery etc. ...	...	...	...	...	17	36	9	62	62
Transport equipment ...	15	...	...	15	22	17	12	51	66
Miscellaneous industries ...	11	...	...	11	13	57	12	82	93
Industrial estates	60	15	...	75	...	...	...	...	75
Small industries public investment	125	100	25	250	...	...	...	...	250
Sub-total industries ...	699	354	117	1,170	819	859·5	541·5	2,220	3,390
Working capital	...	...	...	...	200	200	100	500	500
Revolving fund for working capital, small industries ...	...	...	...	...	80	60	20	160	160
Total ...	699	354	117	1,170	1,099	1,119·5	661·5	2,880	4,050

Total expenditure in East Pakistan Rs. 1,798 million ; in West Pakistan, Rs. 1,473·5 million ; in Karachi Rs. 778·5 million.

34. Production targets for individual industries at this stage have of necessity to be tentative. It is not possible to foresee in detail how market and supply conditions will move during the next five years, and some of the assumptions may, therefore, change. This necessitates a considerable measure of flexibility in the programme ; its composition will need to be reviewed from time to time. The targets for industrial development are considered to be within reach, but strenuous efforts will be needed to achieve them. How far they are achieved will depend in large measure on the availability of foreign exchange from government sources, loans and grants from friendly countries, loans from international banking institutions and the Pakistan Industrial Credit and Investment Corporation, and investment by foreign private enterprise. Development targets both in physical and money terms must on this account also be flexible. It is intended that private enterprise, in view of all the reliance that has been placed on it, should have a large measure of freedom to determine the actual manner in which expansion in capacity should take place. Accordingly the number of units to be set up or the size of individual units is not always mentioned in the targets for individual industries. In order that needs, planning and implementation move in unison throughout the Plan period, review of the current position both as regards market requirements and investment prospects of every important industry will be undertaken at suitable intervals, and investment schedules in terms of individual industries will be published periodically during the Plan period.

35. The Plan for industrial development outlined below and set out in quantitative form in Tables 1 and 5 seeks to show how the limited resources available for investment can be used with most advantage. It is to be regarded as essentially illustrative in character, as a guide to future development rather than a rigid programme from which there can be no departure.

Food, beverage and tobacco manufacturing

36. In a predominantly rural community, village food processing should be an important economic activity. Growing consumers' awareness of better quality food makes it necessary, however, to improve the methods employed. Through the programme for small industries, steps will be taken to assist and advise rural industries so that they can continue to fulfil this important purpose.

37. The size and importance of large and medium scale food processing industries depend mainly on the domestic market prospects. At present the urban population being relatively small and mostly poor, only basic necessities of life like milled rice and flour, sugar and edible oils, are produced in large quantities for domestic consumption. To this list can be added other requirements such as dairy products. The Plan aims at strengthening these industries which must grow with the growth of population and income if greater imports of consumer goods are to be avoided. About 80 per cent of the investments in food processing will go into rice and wheat milling, and the manufacturing of sugar, tea, and tobacco.

38. Large quantities of fruit and vegetables are lost every year because of imperfect marketing arrangements and the seasonality of production. Expansion of fishing, which is a very promising industry, is hampered by inadequate cold storage, processing, and marketing arrangements. Freezing and processing of fruit, vegetables, fish, meat and milk would help to increase the value of these supplies, though the internal market for processed foods is limited because these foods are too expensive for the average citizen. Expansion of these industries is intended largely for export markets since domestic requirements are relatively modest.

39. *Wheat and rice milling industries.*—In the large mills there is a milling capacity of more than 1 million tons of wheat and about 2 million tons of rice. The wheat milling industry is in a technically unsatisfactory condition, and capacity is not fully used. The condition of the rice mills is poor, and milling entails a substantial loss of foodgrains. The mills must be modernized to reduce this loss. Increased production of foodgrains, the changing distribution of population between urban and rural areas, and changes in food preferences point to a greater market demand for milled flour and rice. It is planned to increase the capacity by 400,000 tons of wheat milled and 500,000 tons of rice through establishing new units, and expanding and modernizing existing mills. There are numerous small wheat and rice mills using locally made equipment. The Small Industries Corporations will assist these mills in improving their efficiency.

40. *Sugar.*—The First Plan proposed an increase in the effective capacity of white sugar production from 115,000 tons to 235,000 tons. Installed capacity by mid-1960 is 226,000 tons. Production during 1959-60 is estimated at 150,000 tons. Present consumption of white sugar leaves a large unsatisfied demand in both urban and rural areas ; the full demand by 1965 is estimated at 500,000 tons.

41. It is not proposed to increase the production of white sugar during the Second Plan period to meet the demand in full. Some continued austerity will have to be observed in consumption, mainly because of the high capital and foreign exchange costs involved in adding capacity. The target of production in 1965 has, therefore, been fixed at 300,000 tons. This will meet a part of the unsatisfied demand and cater for the increasing population and inevitable changes in consumption habits in a developing economy. Part of the unsatisfied demand for white sugar will be met by increased supplies of *Khandsari* sugar. No provision is made for imports.

42. About two-thirds of the production of white sugar in 1958-59 came from West Pakistan. Climatic conditions favour cane growing in East Pakistan and the recovery ratio is higher than in West Pakistan, but local transport difficulties make it, at present, impossible for large mills to obtain enough cane to work to capacity. It is proposed that about half of the additional capacity for white sugar be installed in East Pakistan in the form of 4 units with a daily crushing capacity of 1,000 to 1,200 tons each. It will be

necessary to provide adequate transport facilities and encourage the cultivation of the right type of cane. The Pakistan Industrial Development Corporation will build such of these mills in East Pakistan as private capital is unable to establish. Three units with a daily crushing capacity of 1,500 to 2,000 tons each are ear-marked for private enterprise in West Pakistan.

43. An increased production of 30,000 tons of *khandsari* sugar is to be met from 30 mills each of 100 tons daily crushing capacity, of which 20 units will be in East Pakistan and 10 in West Pakistan. Processing of cane into gur will remain important. In addition, research and development of production of *desi* sugar as a village industry will be encouraged by the Small Industries Corporations.

44. *Edible oils and vegetable ghee.*—Edible oils are produced from various oils seeds, the most important of which are cotton seed, mustard, and rape. Cotton seed oil is crushed in larger units but most of the other oils are produced in village oil crushers. At present cotton seed oil production is in the neighbourhood of 70,000 tons. The recovery percentage is low, and the oil extraction industry needs to be modernised for better recovery. Better delinting equipment and solvent extraction plants are needed. Through such modernization it should be possible to process all available cotton seed (except seed to be retained for sowing) and eliminate the use of cotton seed as fodder. With the growing production of cotton, it should be possible to increase cotton seed oil production to 100,000 tons a year.

45. Mustard oil is the main cooking medium in East Pakistan where it is in short supply. An increase of about 45 per cent in the production of oil seeds in East Pakistan is proposed in the Plan; capacity of mustard oil extraction will be increased by 10,000 tons.

46. To encourage the use of coconuts grown in East Pakistan for the production of copra, coir and coconut oil, copra-dryers will be established, and equipment for the extraction of coconut oil installed.

47. The vegetable ghee industry has at present a capacity in operation or under installation of about 35,000 tons, but production in 1959 was considerably lower and far below demand. A production capacity of 50,000 tons of vegetable ghee is planned for 1965.

48. Most of the raw materials should become available from increased domestic production of edible oils, but some imports are provided for under aid. An investment of Rs. 40 million will be required to modernize the edible oil industry and to expand the vegetable ghee industry. The Small Industries Corporations will sponsor the necessary investment in small oil crushers and improved utilization of coconuts within this total allocation.

49. *Tea.*—The present annual production of manufactured tea averages nearly 54 million pounds. The annual production of tea is expected to rise by about 10 million pounds by 1965 ; tea manufacturing capacity will be increased correspondingly, through modernization of existing units and through expansion.

50. *Sea salt.*—Demand for salt will increase with a growing population. During the Plan period there will also be an appreciable increased demand from industry for salt. To meet this demand, considerable efforts will be made to develop production of salt through solar evaporation ; measures will be taken to encourage this in East Pakistan.

51. *Other food processing industries.*—This category includes dairying, fruit canning and preservation, vegetable canning, fish canning and processing production of biscuits and confectionary. Cold storage, canning, preservation and processing of fish will require substantial investment. Fruit preservation had suffered from lack of package material, high price of sugar and marketing difficulties. Some expansion of this industry is required ; and its needs for auxiliary materials will be met. Provision is made for expanding the privately operated modern dairy industry. Allocations are made for expansion of privately owned cold storage facilities. Finally it is hoped that private enterprise will build units to produce various types of animal feed. Provision is also made for some minor expansion of the various beverage industries.

52. A considerable part of investment should be by small industries. The Small Industries Corporations will assist the modernization of small units in these industries.

53. *Tobacco manufacture.*—The production of cigarettes increased from 4,700 million in 1955 to 9,000 million in 1959-60. By 1965 the demand for cigarettes is expected to increase to approximately 15,000 million, and total production capacity will be increased to this figure. The increase will be limited to the production of the cheaper varieties of cigarettes with a low import content. Almost half of the increase will be in East Pakistan. The investment costs will largely be met by foreign private participation in the industry. *Bidi* rolled manually from imported leaves has in the past been the conventional popular smoke, but has meant a considerable strain on the country's foreign exchange resources ; in 1959, the cost of imports of *bidi* leaves amounted to Rs. 6 million. Experiments were undertaken during the First Plan period to develop an indigenous substitute, *kumbhi* leaves, for the imported leaves. During the Second Plan period the import of *bidi* leaves will be reduced in favour of substitutes. The cheap cigarettes to be produced in large quantities will in some measure replace *bidi*.

Textile manufacturing

54. Textile industries constitute by far the largest developed group of industries, accounting for more than forty per cent of value added in large and medium scale industries. Cotton and jute are the most important, but wool and art-silk weaving and wool spinning are also amongst the largest industries of the country.

55. Expansion of the textile industries is proposed both to meet increasing domestic demand and to expand exports, particularly of cotton and jute. Because part of the wool textile industry and the whole of the art-silk weaving industry are dependent on imported raw materials, the increased demand for clothing will be met mainly from cotton textiles.

56. *Cotton textile industry.*—The cotton textile industry, which has been developed almost entirely by private enterprise, is the premier manufacturing industry of the country. It produced yarn and cloth worth about Rs. 1,000 million in 1959, and employed about 150,000 persons; the industry provided more than one third of all employment in large scale industries. During 1954 to 1959 yarn production was doubled, rising from 190 million pounds to 380 million pounds. The importance of the industry from the point of view of the foreign exchange position is very great. In 1951-52 the country imported cotton manufactures worth Rs. 625 million. These imports, which might have cost about Rs. 900 million in 1960, have been eliminated, and cotton yarn and cloth worth about Rs. 200 million were sold abroad in 1959-60.

57. Starting from only 177,000 spindles and 4,800 looms in 1947 the installed capacity of the mills increased to 1·46 million spindles and 20,700 looms by 1954. The First Plan proposed a target of 2·2 million spindles and 38,700 looms by 1960 at an estimated foreign exchange cost of Rs. 275 million. This expansion could not be undertaken for want of foreign exchange. Because, however, of orders for machinery placed under deferred payments agreements before 1955 the mills now have 1·95 million spindles and 29,000 looms.

58. The capacity was sufficient to meet the domestic requirements for cotton textiles in the coarse and medium varieties and to provide a margin for exports until 1959 when shortages began to develop due to the non-implementation of First Plan targets. The average *per capita* consumption of indigenous cloth, exclusive of locally woven art-silk and imported textiles, was 12 yards during the First Plan period. Domestic demand will rise during the Second Plan period, and *per capita* consumption is estimated at 14·5 yards by 1965. To maintain domestic supplies at this rate and to maintain textile exports, the Plan proposes a target of 2·5 million spindles by 1965. A substantial part of the additional capacity, both through the expansion of existing units and by setting up new units, will be located in East Pakistan so as to stimulate private investment in that Province.

59. The cotton textiles spindlage has not only to feed the power looms in composite spinning and weaving mills and horizontal weaving factories with yarn, but has also to supply enough yarn for handloom weaving, hosiery manufacture and ancillary industries including spooling, laces, tapes and braids, all of which are dependent on yarn supplies. The yarn requirements of these industries limit the expansion of production by power looms; this expansion is needed not only for meeting domestic requirements of cloth but also for export, since export of cloth is much more remunerative than export of yarn.

60. During the Plan period efforts will be made to correct the imbalance between patterns of production and demand. The domestic demand for the finer varieties of textiles is estimated at about 30 per cent of the total production, whereas current production is of the order of only 10 per cent,

A beginning has been made to meet the demand by ear-marking 200,000 new spindles for the production of finer counts of yarn. Nevertheless, in the ready availability of cotton suitable for coarse and medium counts yarn, the industry enjoys a natural advantage which has assisted it in successfully entering export markets and in meeting the bulk of the domestic demand. The process of correcting the imbalance between production and national requirements of the finer varieties of textiles must, therefore, be limited by the need of self-sufficiency and maximization of exports in the coarse and medium ranges. The installation of capacity for the finer varieties of textiles must be related also to the availability of indigenous cotton of suitable varieties.

61. There are 29,000 power looms in composite mills, and about 1,000 in other weaving factories. The number of handlooms is estimated at 500,000. As a means to ensure adequate supplies of yarn to all industries consuming yarn, the Government decided in 1952 that mill weaving should be so organized as to leave 25 per cent of yarn production free for other users. The ratio of spindles to looms was fixed at 50 : 1. Although this ratio provides a yarn surplus of 36 per cent instead of 25 per cent, its retention is recommended in order to provide for export requirements which were non-existent when the principle of 25 per cent surplus yarn was enunciated.

62. Taking into account the yarn demands on spindles by existing power looms, handlooms, hosiery and miscellaneous industries and the need for expanding the production of mill-made cloth, particularly for export, the Plan proposes the installation of 7,000 additional power looms by 1965 inclusive of the power looms in independent weaving factories. Provision is also made for substantial modernization and for auxiliary equipment, such as atmospheric control and combing and processing facilities, to utilize the existing capacity more efficiently and to improve the quality of products.

63. The handloom industry is in three distinct categories. The first is the village handloom catering for local requirements. The second is the handloom engaged on specialized fabrics which are in substantial demand both in the domestic and foreign markets. The third category is the handloom organized on a factory scale for the mass production of standard cloth. The first category provides a traditional village occupation which should be supported. The second presents no economic conflict with mechanized weaving. In the case of the third there is less economic or social justification for continuing outmoded methods of production; this category should give way to power loom weaving. However, this transition must be gradual in order to avoid unemployment. Provision is made in the Plan for this purpose, and the Small Industries Corporations will pay special attention to problems of the handloom industry.

64. *Jute manufacturing.*—Jute manufacturing is the most important industry from the standpoint of earning foreign exchange ; more than half the country's foreign exchange earnings from manufactured goods in 1958-59

came from the export of jute goods. Jute is second only to cotton textiles in the contribution to national income and total employment by large-scale manufacturing industries.

65. The First Plan envisaged a programme of raising the total capacity from 6,500 to 12,000 jute looms. There has, however, been a heavy shortfall ; only three additional mills with a total capacity of 1,500 looms were installed bringing the total number of looms in 1960 to 8,040 in 14 jute mills. Several factors contributed to this—high operating costs, labour difficulties, low profits, and uncertainties about exports.

66. Production rose from 53,000 tons in 1954 to 172,000 tons in 1958, and made further rapid progress in 1959 under the impact of the export incentive scheme ; the estimated production in 1959-60 is about 250,000 tons. Requirements of internal consumption are estimated at 60,000 tons in 1960. Export demand is estimated at more than 210,000 tons a year. Thus, the industry is now unable to meet both the domestic and foreign demand.

67. Internal demand for jute goods in 1964-65 has been estimated at 90,000 tons, in view of the targets for foodgrain, sugar, cement, and fertilizer production—all users of jute bags. Present trends indicate that there will be an increasing world demand for jute goods, and it should be possible for Pakistan jute mills to capture a greater part of the world market because they are equipped with modern machinery, have a supply of superior quality of jute, and have a good reputation for quality of finished products.

68. The target is a minimum of 12,000 looms which should be reached before 1965. Present performance indicates that it should be possible to reach a production of at least 380,000 tons in 1964-65, of which up to 290,000 should be available for export. The cost of installation of the additional capacity will depend on whether the new looms are added to existing mills or new mills are built. It has been assumed that 2,500 looms will be installed in existing mills, of which 800 looms will require only minor supplementary construction costs for buildings. The remaining 1,500 looms will be in new mills. If the demand increases beyond expectations a higher target of capacity and the establishment of more new mills may become necessary.

69. The PIDC will have to assist in the further development of the industry, because private capital is still somewhat reluctant, mainly due to the low profit record in the past. Public investment through PIDC has been limited to about 40 per cent in the Plan proposals. The possibility of attracting foreign capital will be actively explored.

70. *Woollen and worsted textile industries.*—The installed equipment in woollen textile mills is 25,700 spindles, providing a capacity on a single shift basis of 3·5 million pounds. The existing woollen spindlage can meet internal requirements, now estimated at 5·2 million pounds, by establishing operations on a multi-shift basis, and this should be done in the interests of production efficiency. Installed equipment in the worsted textile industry

is 22,700 spindles, with a capacity of 3·5 million pounds. Present demand is estimated at 4 million pounds but no increase in capacity is proposed during the Plan period because of the foreign exchange burden of imported raw materials including wool tops, dyes and chemicals.

71. Most of the wool which is suitable for manufacturing carpet is now being exported raw. A part should be converted into yarn for use in domestic manufacture of carpets. The Plan therefore proposes to set up a carpet wool spinning unit, based on indigenous wool. Provision is also made for the modernization of existing mills.

72. It is proposed to establish a wool bureau on the lines of the International Wool Secretariat, London. This Wool Bureau will be responsible for trade promotion, education, scientific and technical research, publicity, and information relating to the wool industry.

73. *Art-silk industry* .—At present there are 286 factories with a total of 8,000 looms engaged in the manufacture of art-silk fabrics. The art-silk industry depends entirely on imported yarn, with a consequent heavy burden on the foreign exchange position. The Plan contemplates converting much of the art-silk capacity to weaving cotton yarn. The provision made for modernizing the art-silk industry will be used for converting part of the industry to this purpose.

74. *Other textile industries.*—There are a number of other minor industries in the textile field : reeling and filature of silk, hosiery and knitted goods, carpet manufacturing, and other specialized textile manufacturing. Developing of sericulture is one of the important tasks of the Small Industries Corporations in both Provinces. Some investment in reeling and filature may be undertaken by private industry. Hosiery and knitted goods are manufactured both by large and small units, which have a sufficient capacity to supply the domestic market and still have surplus capacity available for export. Manufacturing woollen carpets will remain a predominantly handicraft activity, but the possibility of exporting cheaper, machine made carpets will be explored, and pilot plants will be established. Manufacturing of carpets from jute will be encouraged. Provision is also made for the manufacture of other specialized textiles.

Footwear and apparel

75. Large-scale expansion of the footwear and apparel industries is not proposed during the Plan period, as traditional production methods are most suitable for the present stage of development. The Plan proposes limited modernization and expansion of these industries and the installation of some modern capacity for footwear production in East Pakistan. Most of the investment in footwear and apparel will probably take place in small units. There are 12 organized leather footwear factories, mostly in West Pakistan, of which one is large and all are fully or partly mechanized. It should be possible to export leather footwear, and the proposed modernization should improve the prospects.

Wood and wood products

76. There are at present 14 power-driven saw mills and many more small units in the country. The main centres are Jhelum and Mardan in West Pakistan and Sylhet and Chittagong in East Pakistan. Existing saw milling capacity is considered adequate to meet present demand, but additional capacity will be needed to meet increased demand during the Plan period. There is urgent need for two modern wood-seasoning units in East Pakistan equipped with kilns and mechanized heat control arrangements, since during the long rainy season in East Pakistan open-air wood seasoning is not possible. Capacity to produce ply-wood and to make tea-chests from ply-wood will be increased in East Pakistan. For production of furniture and related wood products there are at present 11 organized workshops in the country fitted with modern machinery. More units will be set up mainly for producing cheaper and better-finished furniture.

Pulp, board, paper and paper products

77. The existing factories can produce 43,500 tons of paper, 25,000 tons of newsprint and 15,000 tons of straw and cardboard. If the paper, newsprint and board factories produce to their full capacity, the country's present demand will be met. Export prospects exist for newsprint and certain types of paper. Internal demand will, however, increase during the Plan period, and there is need for further expansion.

78. Preliminary schemes have been prepared by the PIDC for establishing two particle board factories in East Pakistan, one at Khulna with a capacity of 10,000 tons per annum and the other at Kaptai with a capacity of 2,400 tons. The Corporation will also explore the further possibility of producing hard board and cardboard in East Pakistan, where raw material resources make expansion attractive. It is proposed that additional production capacity of 15,000 tons of mechanical paper and newsprint should be created during the Plan period. Demand for paper products, notably for packing purposes, is bound to increase sharply. Provision is made for expanding the capacity of industries manufacturing paper products.

Printing, publishing and allied industries

79. The printing and publishing industry is one of the three largest employment providing industries in the country. According to the census of manufacturing industries held in 1957, only cotton textile and jute manufacturing industries provide more employment and in contributing to the national income, only five industries are of higher importance.

80. This industry should expand rapidly during the next two decades. Expansion of the educational system will in itself create an immediate demand for text books, increasing literacy will create new demand for newspapers, books and other publications and the institutions of Basic Democracies will further stimulate demand for printed matter. To meet this situation, expansion will need to take place in two directions. The larger printing

units in the cities will need to be modernized to be able to increase their output and also to print better quality material at reasonable rates. Simultaneously there will need to be an extension of small printing shops in numerous towns and villages. The Plan includes a provision for expanding and modernizing government printing facilities for the use of both the public service and the universities. Commercial printing facilities should, however, be used to the fullest extent possible.

Leather and leather products

81. Pakistan possesses domestic animals, wild animals and reptiles which yield some of the finest hides and skins in the world. The annual production of hides and skins is estimated at 16 million pieces valued at Rs. 135 million. Of these only approximately 6 million pieces are tanned in Pakistan and the balance exported in raw state. Leather products in 1957 included 11 million pairs of shoes and items such as sports goods, mechanical leather items and saddlery. Leather exports in 1957 were 270,000 tanned pieces valued at Rs. 2·5 million, sports goods valued at Rs. 4 million and other items worth Rs. 6 million.

82. The country can earn considerably more foreign exchange by tanning part of the hides and skins at present exported raw. Better handling of raw hides and skins, notably through more careful flaying, can substantially increase their value. An expert report puts the net foreign exchange earning which could result from the expansion and improvement of tanning and leather fabrication at more than Rs. 90 million a year. An additional Rs. 20 million in foreign exchange could be earned by improving the quality of raw hides and skins, and utilizing leather ingredients and by-products.

83. At present the tanning industry comprises 80 large and medium scale tanneries with an annual capacity of 30 million square feet of upper leather, and 16 million lbs. of sole leather. This, with the capacity of numerous small units, is sufficient to meet the internal demand, but additional capacity in modern tanneries is needed to exploit the export market. These tanneries should be run scientifically, and the quality of the finished products should be subject to strict control. There should be some export of semi-finished leather which foreign importers can finish according to their own choice. Through the modernization of large and small units and the establishment or expansion of modern tanneries, it is proposed to increase tanning capacity in East Pakistan by 1,600 cow hides and 800 goat skins per day, and in West Pakistan by 800 sheep and goat skins per day during the Plan period.

84. Export of leather in the form of leather goods is a promising possibility. With technical advice on design and quality, small units can manufacture excellent leather goods such as bags, wallets, belts and fancy leather goods for which there is a large export market. The Small Industries Corporations will devote attention to strengthening the leather goods industries.

Rubber products

85. Cultivation of rubber plant is possible in East Pakistan where climatic conditions are favourable. Also availability of natural gas in both East and West Pakistan makes manufacture of synthetic rubber technically feasible. The economics of rubber production from one or both sources requires careful study.

86. The country is self-sufficient in bicycle tyres and tubes, and increased demand during the Plan period can be met by full utilization of existing capacity. There is, however, no manufacturing capacity for car and giant tyres and tubes. During 1957 the import of car and truck tyres and tubes amounted to Rs. 12 million. Demand for the Plan period has been estimated at 150,000 tyres and 175,000 tubes annually. Manufacturing capacity to meet this demand is now being installed and will be expedited during the Plan period. In addition to manufacture of car and giant tyres and tubes, retreading of old casings will be encouraged.

87. A wide range of other rubber goods is being manufactured in the country by about 40 units. Modernization of these units will be necessary. Production of rubber or rubberized spares and accessories, as well as rubberization equipment required or used by transport and other industries, will be promoted.

Chemical and petro-chemical industries

88. Pakistan has substantial potentialities for the production of chemicals. Raw materials such as natural gas, coal, gypsum and other minerals, industrial and agricultural waste products are available in adequate measure for the production of a wide variety of chemicals. The Plan provides some Rs. 900 million for establishing or expanding chemical and petro-chemical industries. This allocation is higher than for any other group of industries, being about 30 per cent of the total investment in manufacturing units. The allocation is modest compared with needs and potentialities, but it cannot at present be increased further because shortage of foreign exchange limits the promotion of industries which require heavy investment in modern imported equipment.

89. *Fertilizers.*—Two fertilizer factories are at present in operation, and another two factories are under construction and expected to start production in 1961. Of the factories in operation the ammonium sulphate plant in Daudkhel with a capacity of 50,000 tons produced 42,000 tons in 1959 ; the superphosphate factory in Lyallpur with a capacity of 18,000 tons produced only 1,500 tons in 1959 because of inadequate demand. The two factories under construction are at Multan in West Pakistan and at Fenchuganj in East Pakistan; both will produce nitrogenous fertilizers from natural gas. The Multan factory is designed to produce 103,000 tons of ammonium nitrate and 59,000 tons of urea, a total of about 250,000 tons in terms of ammonium sulphate. The factory at Fenchuganj is designed

to produce 117,000 tons of urea, equivalent to about 250,000 tons of ammonium sulphate. The nitrogenous fertilizer factories will meet the greatly increased demands of the agricultural programme during the Plan period, but a study of future requirements should begin soon, as a further expansion of nitrogenous and phosphoric fertilizer production will be needed before long.

90. *Industrial chemicals.*—Certain basic chemicals, including sulphuric acid, soda ash and caustic soda, are manufactured in the country, but in insufficient quantities. Most of the capacity for sulphuric acid and caustic soda is in factories which themselves utilize the products, and there is little surplus available for sale to other users. Substantial quantities of caustic soda are imported. Production of soda ash is barely enough to satisfy the demand in West Pakistan, and East Pakistan is wholly dependent on imports. A soda ash plant based on sea salt will be set up at Gharo in West Pakistan with a capacity of about 65,000 tons per annum. Part of the production will be processed into caustic soda, and the remainder should satisfy the domestic demand during the Plan period. A caustic soda plant using the electrolytic process will be built in West Pakistan, with a capacity of about 20,000 tons per annum. A similar plant with a capacity of about 6,000 tons is also proposed for East Pakistan. Chlorine, available as a by-product from electrolytic caustic soda plants, will be used to make hydrochloric acid, liquid chlorine, bleaching powder, polyvinyl-chloride, DDT, and other products. Additional capacity for supplying various industries with about 10,000 to 15,000 tons of sulphuric acid will be built in both the Provinces. In addition, a block allocation is made for various industrial chemicals for which both demand and raw material resources are available. Private foreign investment has an important part to play in establishing capacity in some of the chemical industries.

91. *Dyes.*—A modern dye factory with a capacity of 300 tons of sulphur black and 250 tons of congo red came into operation in Daudkhel in 1959. It is being extended to produce 130 tons of other dyes. A factory for production of 285 tons of other dye stuffs is being built at Nowshera. It is not proposed to set up additional capacity in West Pakistan, but provision is made for the creation of a unit in East Pakistan for producing dyes used in that Province, notably vat and coal tar dyes. Detailed proposals have still to be worked out.

92. *Pharmaceuticals, antibiotics, and fine chemicals.*—Imports of drugs and medicines, in spite of foreign exchange limitations, are of the order of Rs. 60 million a year. The indigenous capacity for pharmaceutical products is limited mainly to processing and repacking imported drugs. The only substantial instance of basic manufacture of drugs within the country is the penicillin factory built during the First Plan period. The firms at present engaged in the processing and repacking of imported pharmaceuticals will be encouraged to undertake basic manufacture of drugs from indigenous raw materials and imported intermediates. Reliance will be placed on foreign manufacturers of repute to create this manufacturing capacity. A beginning

in this direction is now being made by a number of manufacturers. A factory will be set up in East Pakistan to produce substantial quantities of sulpha, anti-TB and anti-malarial drugs. The establishment and expansion of basic chemicals industries, the oil refinery, and a coal carbonization plant will provide some of the important raw materials for the pharmaceutical industry.

93. *Insecticides and pesticides.*—Because of the requirements of the health and agriculture programmes, the production of insecticides and pesticides will be undertaken during the Plan period, in conjunction with the basic chemicals industries, coal carbonization, oil refining and where feasible, petro-chemical industries.

94. *Coal carbonization.*—Coal production is expected to double during the Plan period. Demand for coal as such will ensure the sale of increased production, either as coal or as briquettes. Pakistan coal can, however, be better utilized in some processed forms, and it is, therefore, proposed to set up a coal carbonization plant in conjunction with the coal briquetting plants. The by-products of the process will be fuel oil, diesel oil, fuel gas and phenols.

95. *Other chemicals industries.*—A new industry included in the Plan is the production of polyethelene from natural gas or molasses, a by-product of the sugar industry which is at present largely wasted. A substantial demand for polyethelene materials already exists in the plastics industry, and the increasing volume of industrial products will require polyethelene bags for packing chemical products.

96. The country has developed a large number of units producing soap, toilet articles, cosmetics, paints, and varnishes. Foreign firms have contributed with capital and technical skill to the development of these industries. The capacity of these industries is theoretically adequate to meet the increased demand during the Plan period, but some investment in new capacity will nevertheless be permitted to increase competition, improve quality, and permit production of new items. Provision is made for investment, mostly in new capacity for production of essential oils, starch, tanning extracts, and other miscellaneous products. Special attention will be paid to developing production of tanning extracts from indigenous raw materials. There is ample capacity for production of matches in the country, but the quality is still to improve if the matches are to compete in the export market. Provision has been made to install modern equipment in East Pakistan for this purpose.

97. *Oil refining.*—An oil refinery is being established in Karachi to refine approximately 1·5 million tons of imported crude oil per annum. The refinery is expected to come into operation by 1963, and to save Rs. 30 million a year in foreign exchange on account of import of refined petroleum products. Its by-products, notably gases, can be used for manufacturing a wide range of important synthetic fibres and other products. No detailed proposals for such ancillary industries have yet been worked out, but the Plan can be adjusted to provide for those industries which can be suitably established.

98. *Petro-chemical industries based on natural gas.*—A beginning with petro-chemical industries will be made by building a carbon black plant based on natural gas at Sui. The plant will be set up in collaboration with foreign private investment. It will utilize about 70 million cubic feet of gas per day and will produce 36 million pounds of carbon black a year, most of which will be exported.

99. The proved natural gas resources in East Pakistan are almost entirely dedicated to cement and fertilizer production. However, prospects of finding more natural gas are good and further exploration will take place during the Plan period.

100. In West Pakistan there are abundant reserves of natural gas. The Plan makes provision for setting up a number of units at a total cost of Rs. 33 million which, as noted above, is subject to upward revision if warranted by the feasibility of individual projects. The products which are at present under consideration are acetylene, to be processed into acrylonitrile fibres, and polyvinyl chlorides (PVC). It is expected that foreign private capital will be forthcoming to finance the foreign exchange component of such petro-chemical plants.

Non-metallic mineral products

101. The wealth of non-metallic minerals which exists in West Pakistan can form the basis for new and important chemical industries, and is already the natural basis for the important group of industries which produce bricks, tiles, cement, glass and pottery, and related products. In East Pakistan such mineral resources are scarce, but clay, sand and some limestone are available in sufficient quantities to permit an expansion of existing units.

102. *Cement.*—In West Pakistan cement can be produced cheaply because of the ready availability of limestone, gypsum and natural gas. Investigations to determine the extent of raw material available in East Pakistan are in progress. Production increased from 673,000 tons in 1954 to about one million tons in 1959, but demand increased even more rapidly and there is a substantial unsatisfied demand. To meet this growing deficit, a short range target is set at 2·5 million tons, twice that for the First Plan, to be achieved by 1962. The rate of production at mid-1960 was slightly less than the original target (1,280,000 tons) for 1960.

103. The production target for 1965 is based on likely demand inside the country and the prospects for export. The development programme and the Indus Basin replacement works should raise the internal demand to about 2·7 million tons a year. Export demand is somewhat uncertain, but prospects do exist and are capable of exploitation because of relatively low production costs. The Plan provides for a target of 3 million tons by 1965. The additional capacity must come into operation early in the Plan period because demand will rise rapidly. During 1960 the capacity will reach 1·4 million tons. Of the additional 1·6 million tons to be produced during the Plan period, about 100,000 tons of capacity will be installed in East Pakistan (where expansion is hampered by shortage of limestone), some

400,000 tons in the neighbourhood of Karachi, 120,000 tons at Hyderabad, and a million tons in the northern districts of West Pakistan to meet the requirements of irrigation and other works in that area. Deficiencies in production in existing cement plants will be checked through modernization.

104. *Other non-metallic mineral products.*—Expansion and modernization will be necessary in case of other non-metallic mineral industries, notably manufacturing of bricks, refractories, glass, ceramics, and miscellaneous products required for construction. Bricks and tiles are now mostly produced in small units. Because supplies of bricks of good quality and in large quantities have been uncertain, there has been an uneconomic tendency to use cement as house building material. This has enhanced building costs and slowed down building, particularly in East Pakistan where cement is both scarce and expensive. The Small Industries Corporations will assist in modernizing and expanding small scale production of bricks and tiles. But to meet increased demand, notably in the northern parts of West Pakistan and in East Pakistan, it is proposed to set up a few large automatic brick plants.

105. Refractories include ordinary and high alumina fire clay bricks, silica, magnesite, chromite and chromagnesite bricks as well as special shapes, graphite and fire clay crucibles and corresponding refractory goods. At present the country has sufficient capacity for manufacturing ordinary fire-clay bricks, but not for other refractories and some expansion of these will be encouraged.

106. The present demand for pottery and sanitary wares is estimated at 8,000 tons a year, against a capacity of only 2,700 tons. It is proposed to set up additional capacity for 3,000 tons in East Pakistan and for 2,800 tons in West Pakistan. The pottery wares expansion and modernization will mostly be in small units, actively assisted by the Small Industries Corporation.

107. The demand for porcelain insulators is estimated to be 2,000 tons in 1965, against present capacity of only 1,000 tons per annum ; private investment will be encouraged to fill the gap.

108. The existing capacity of the ordinary glass industry, though enough to meet domestic demand, is not fully utilized for lack of soda ash, imported chemicals and refractories. Most of the existing units require modernization. Provision is made for expansion of production of vials and ampoules, laboratory and neutral glass wares, and bulb shells. For the miscellaneous ceramics, cement, glass and building material industries a provision has been made in the Plan for new capacity and expansion. This will cover the investment cost of an asbestos cement sheet plant in East Pakistan with a capacity of 6,000 tons per annum, and also the manufacture of other building material from cement, agricultural waste, and mineral products.

109. The programme for housing and settlements includes provisions for stimulating the use of local building materials, especially in rural areas. Production of such materials which does not require much capital investment will be sponsored by the Small Industries Corporations, mainly through their rural industries services.

Basic metal industries

110. *Steel.*—The country is dependent almost entirely on imports for its requirements of steel, which will reach at least half a million tons in the last year of the Plan. Apart from a few small electric furnaces which melt some 20,000 tons of scrap per annum, there is no capacity in the country for making steel. It is a matter of prime importance that the country should establish its own steel making industry with all possible expedition. The creation of a steel industry will facilitate the establishment of heavy engineering industries which are essential for the maintenance and support of other industries and for providing a base for future development. The economic maturity of a country is measured primarily by its basic metal and metal products industries ; and it is only through these industries that the import requirements of future economic development can be reduced. The best solution would be to base a steel industry on indigenous iron ore and coal. But the quality of indigenous iron ore and coal so far proved in substantial quantities is not high ; and the technical problems regarding the process for reducing domestic ore, which cannot be reduced by conventional methods, are still not settled. It is of the utmost importance that studies into the processes and feasibility of establishing an integrated steel plant based on domestic raw materials be vigorously pursued, and final decisions taken in the near future. Provision is made in the Plan for this purpose. Should these studies prove successful, adjustments should be made in the Plan to find the resources for establishing the steel plant. On present indications it appears practicable to establish a pilot plant to produce about 16,000 tons of luppens from the ore at Kalabagh in West Pakistan. This project should provide a large-scale process test of considerable importance, and should receive very early consideration. Provision is made in the Plan for an investment of Rs. 25 million in this project.

111: An integrated steel plant based on imported iron ore, possibly with an admixture of indigenous ore, is another possibility that requires immediate exploration. The study should include an estimation of the additional port facilities that the project will certainly require. The study should be undertaken urgently with the assistance of independent consultants.

112. Even if investigations into the comparative feasibility of various alternatives are completed quickly, the setting up of an integrated steel plant will take some years. The country should not have to wait all this time for the establishment of a steel industry. Recent studies indicate that the production of steel from imported pig iron and scrap is economically feasible. With such production could be integrated later the production of pig iron from indigenous or imported ore, whichever is found practicable as a result of the investigations. It is, therefore, proposed that the production of steel from imported pig iron and scrap should be undertaken during the Plan period to meet a substantial part of the country's requirements. Provision is made in the Plan for an expenditure of Rs. 200 million on a steel plant of an initial capacity of 250,000 tons of steel per annum, capable of expansion as required,

to be located at Karachi to meet part of the steel requirements of West Pakistan. To meet the requirements of East Pakistan in full, it is proposed that a similar steel plant, with a capacity of 100,000 tons per annum, should be set up in that Province. Provision of Rs. 100 million is made in the Plan for the purpose. The two proposed plants should enable the country to meet about 70 per cent of its requirements. On a conservative basis, the production of 350,000 tons of steel in the country will mean a net foreign exchange saving of Rs. 45 million a year. The integrated steel plant, when it comes into being, will meet the very rapidly increasing requirements of the country in future Plan periods.

113. *Other basic metals.*—Mineral explorations so far conducted also suggest the possibility of producing ferro-alloys and non-ferrous metals from indigenous ores. While the explorations will be further pursued during the Plan period, provision is made in the Plan for initial expenditure on a unit producing ferro-chrome.

114. Production in basic metal industries reached the figure of Rs. 114 million in 1957. Most of this output originated in steel re-rolling mills. At present there are 143 such mills, which with a few exceptions are technically primitive and can neither produce standardised goods nor operate efficiently. Attention will be given during the Plan period to rationalizing the steel re-rolling industries by modernizing the relatively more efficient units and eliminating those which cannot be economically modernized. After modernization, one-third of the production in the re-rolling industry should consist of structurals and quarter inch bars, which are not at present being made. A factory producing baling hoops has recently come into production, and a steel wire mill is under construction.

Metal products industries

115. The metal using and producer goods industries are at present weak and are dependent on imported raw materials. Efforts will be made to remedy this situation. In the first place it will be necessary to train the personnel required to man the increased capacity. In the second place, if the increased availability of imported raw materials envisaged in the Plan is realised, it will help the operations of these industries, and production can at least be doubled during the Plan period. Some larger and modern units will be required for the growth of producer goods industries, but a wide scope will be offered to small units for producing both components and entire products, and for servicing equipment and machinery in use. The Small Industries Corporations will assist small units in this field.

116. *Metal goods industries.*—This industry group manufactures a great variety of goods, including cutlery, tools, utensils, metal barrels, drums and tins, and a great many other products. For a number of such products modern machinery is vastly superior because it leads to higher output in relation to the value of the installed equipment. This is notably the case where goods are produced through stamping and pressing. In

these sectors of the industry it is nevertheless justifiable to use old machinery as long as costs are not excessive, but some modernization is essential. Other sectors of the industry such as hand tools and cutlery production can, however, prosper on the basis of cheap but skilled labour. In such sectors large scale modernization will not be encouraged. In both types of industries small units can be fully competitive, if management is alert and maintains a good standard of its products.

117. To increase production in the metal industries to full capacity is not justified because of the foreign exchange cost. These industries could increase their production considerably if sufficient raw materials were available, possibly to the point of using more than Rs. 200 million of imported raw materials. More than half of the requirements are for industries producing aluminium utensils, tin and galvanized ware, and miscellaneous utensils. Since the value of imports of metal consumer goods was only Rs. 12 million in 1958, and of imports of other metal goods probably even smaller, increased production will reduce imports only to a very limited extent. Iron and steel will be made available in larger quantities, but imports of non-ferrous metals may have to remain closely restricted. The Small Industries Corporations should be able to meet reasonable needs of small units.

118. Some modernization and expansion of the existing capacity is required. Grey iron foundries will be helped by the Small Industries Corporations which also should help in setting up units for production of hand tools, notably in East Pakistan. Foundries for malleable iron and units for production of shoe grindery will be established in both the Provinces.

119. Industries producing water meters, bolts, nuts, and razor blades will be expanded, and new units encouraged in East Pakistan.

120. The existing capacity for the production of pipes (galvanized iron and black) is inadequate to meet increasing demand. A modern unit with a capacity of about 6,000 tons will be installed in East Pakistan, and expansion may also be undertaken in West Pakistan.

121. Heavy steel construction, which includes bridges, pipelines and heavy equipment for various industries, needs encouragement. Part of the investment needed may be made by PIDC to enable some of its units to undertake structural engineering.

122. *Machinery (except electrical machinery).*—Machine building has been hampered in the past by a number of factors including shortage of experience, equipment and raw materials. Until recently requirements were also small. Products worth only Rs. 50 million were manufactured within the country in 1957 by the machinery industry. Imports of spares alone now amount to between Rs. 20 and Rs. 30 million and imports of machinery amount to several hundred million rupees; and the demand is bound to increase rapidly. Even though sizeable imports of machinery and equipment from abroad will of necessity have to continue, home production of

agricultural and textile machinery, sewing machines, engines, turbines, pumps, compressors, equipment for sugar and cement industries, machine tools and spares and accessories will be encouraged during the Plan period.

123. Machine building industries do not necessarily require very heavy investment in relation to output, but they do require well trained labour, highly skilled engineers, and competent management. To help this essential industry, and other industries similarly placed, the quality of technical schools and colleges will need to be improved, and consultant services need to be established. Cooperation with foreign firms of repute will be encouraged. To ensure that healthy competition develops and that Pakistan machinery gradually enters the market, the more efficient units in this industry will be given increased supplies of steel and other raw materials. Much of the capacity in this industry will be lodged in large or medium sized units, but the growth of the industry as a whole will encourage small units, notably through orders placed for components in small specialized firms.

124. An investment of Rs. 70 million should more than double the output in the machinery industry during the next five years with an additional Rs. 25 million for modernization and replacement. New units to produce marine diesel engines, agricultural implements and machinery, pumping sets and machine tools will be established in East Pakistan.

125. *Electrical machinery, apparatus, appliances and supplies.*—The above discussion of machinery manufacture applies also to electrical engineering industry which is hampered by shortage of experience, technicians, and raw materials. The present level of import of consumers' electric appliances is around Rs. 20 million a year. In addition, there is about Rs. 7 million a year worth of import of spare parts, and considerable import of investment goods. During the Plan period available electric power is estimated to increase by 55 per cent, and many towns and villages will be electrified. The electrical engineering industries must be prepared to meet increased demand for standard products such as bulbs, meters, cables, fans, many types of motors and transformers, switchgear, and household appliances. The industry will need to increase its capacity by at least 150 per cent by 1965. Because there is considerable unused capacity for some of the products, this target should be attainable with an investment of about Rs. 62 million in new units and in improvement of existing capacity. Small units have their place in this industry, both as producers of components and complete appliances. Expansion will mainly take place in existing units, except for wire and cables (including tele-communications wires and cables), transformers, and switchgear, for which new units will be developed. Because very little capacity exists in East Pakistan, a substantial part of the additional production of accumulators, electric appliances, motors, fans, and possibly bulbs and welding electrodes, will be encouraged in that Province.

126. Industries which produce radios, refrigeration equipment, air-conditioners and certain other types of appliances are bound to become important in the future. These industries should receive some encouragement

even through by other criteria the country cannot afford large quantities of the goods they produce. In collaboration with foreign firms of repute the production of components, as distinct from mere assembly, should be started.

127. *Transport equipment.*—Modern vehicles for transport require substantial imports. If domestic production of transport equipment is not gradually developed, these imports will become a heavy and increasing burden on foreign exchange resources.

128. The output of the transport equipment industry should increase by about 75 per cent during the Plan period. Through the Small Industries Corporations, assistance will be given to traditional industries producing country boats and carts, with a view to increasing production and improving the design and performance of their products. Building of modern types of boats, barges and ships will be promoted by granting facilities for modernization of existing units. The domestic market is at the moment not large enough to justify the complete production of automobiles, but demand for commercial vehicles, including buses, is already so considerable that the possibility of equipping some of the existing assembly plants with production facilities or allowing other automobile manufacturers to set up more complete production facilities in the country will be pursued. Production of automobile spare parts will be stimulated. If reputable foreign firms are forthcoming, manufacturing of tractors and spare parts will be started in both the Provinces. In East Pakistan the emphasis will be on production of suitable small tillers. More stress will be placed on preventive maintenance through regular servicing of vehicles. The Small Industries Corporation will help the establishing of modern repair shops in suitable places. Although automobile repair shops are eminently suitable for small units, they require very substantial investment in modern equipment. The demand for bicycles will be covered entirely from domestic production. To achieve this target, existing bicycle factories will be enabled to import additional equipment as needed. If the demand is still not properly met, it may be necessary to establish one or more additional units.

Jute baling

129. Jute baling capacity was greatly increased after Independence to enable the country to sell its raw jute in the world market. It gives employment to a substantial labour force. Capacity is generally sufficient to handle the increase in raw jute supplies expected during the Plan period. Some provision is made for necessary modernization.

Cotton ginning

130. The price realized by raw cotton in the world and domestic markets is highly dependent on the quality of ginning. The cotton ginning industry has been poorly equipped to handle this important task because most ginning units are out of date and badly maintained. One reason for this unsatisfactory state of affairs has been that until recently most ginning

units, which were evacuee property, were not sold but hired on a short term basis. This situation has now been remedied and much better management can be expected.

131. The First Plan proposed an ambitious programme for the modernization and expansion of the cotton ginning industry, but apart from the establishment of a few model ginning units, very little was done. The Second Plan makes a smaller provision for the industry than did the First, but its full utilization should be sufficient to carry through the maximum feasible programme for modernizing existing units and setting up new units, particularly in areas where cotton growing is expanding.

Film industry

132. There are 6 studios in the country (4 in Lahore, 1 in Karachi and 1 in Dacca) producing feature films. Production in 1959 was about 50 films, excluding documentary films and other short films. The demand for Pakistan films has been variously estimated at from 80 to 180 films per year. With some modernization this is within the capacity of the existing studios. The industry has a role to play not only in the field of entertainment but also in national development.

133. There is a special case for expanding the studio facilities in East Pakistan to permit expanded production of films in Bengali. A publicly owned Film Development Corporation exists in the Province, which should concentrate on providing necessary technical facilities, and leave actual production in the hands of private enterprise. It is doubtful whether a similar corporation is needed in West Pakistan. The handicap in West Pakistan is not technical but financial ; but public finance for production of films is not justified. Means of assisting the growth of the indigenous film industry, which undoubtedly saves foreign exchange, will need to be kept in constant review. To modernize and expand the studio capacity about Rs. 10 million will be required, of which half will be in foreign exchange. Means of guaranteeing the industry a satisfactory supply of raw films and other important materials will need to be found. There is demand also for more cinema houses in the country ; there are at present 210 cinemas in West Pakistan and Karachi, and 120 in East Pakistan.

Sports goods

134. Production of sports goods gives employment to thousands of people in the Sialkot area of West Pakistan. Most of the production is exported and enjoys a high reputation although there has been some fall in exports. The industry must be given facilities to modernize in order to maintain and strengthen its position in the world market. This is a task for the Small Industries Corporation in West Pakistan.

Surgical and other instruments

135. High-quality surgical instruments are produced, predominantly in the Sialkot area of West Pakistan. Almost 90 per cent of the output is

exported. In order to achieve standardized products essential for expanding exports it is necessary to introduce modern methods in some processes used in this industry. The Small Industries Corporation in West Pakistan will assist this industry to obtain the necessary equipment, which should as far as possible be pooled between firms. The Corporation will also assist the musical instrument industry in modernization.

Agricultural and industrial waste

136. Provision is made in different industry groups for establishing units to use certain agricultural and industrial waste. Research is constantly demonstrating the wisdom of the adage : produce wealth from waste. A lump sum of Rs. 30 million is set aside to provide for unforeseen investment opportunities revealed during the Plan period. Some of this investment may be made by PIDC as a pioneering start.

Other products

137. For manufacture of a number of widely different products for which there is increasing demand, such as grinding wheels, collapsible tubes, lubricants and greases, allocations have been made for modernization and new units.

Testing and research

138. In addition to the emphasis on industrial research generally, the testing facilities provided by the Government Testing and Standards Laboratories, the Central Cotton Committee and other institutions will be expanded. Further provision is made for modernizing testing and research facilities in private manufacturing units so as to promote essential standardization.

Government investment in large scale industries

139. Government investment in large scale industries contemplated in the Plan is Rs. 845 million. The actual investment may be less if private enterprise undertakes wholly or in part the projects for which, on present indications, government investment will be needed. On the other hand, it may become necessary during the Plan period to increase public investment if private investment proves inadequate or if it is found practicable to establish an integrated steel plant, or to promote petrochemical industries and gas liquefaction.

140. In addition, the Plan makes a provision of Rs. 75 million for the creation of industrial states in both the Provinces to assist the establishment of industries. This device has been much used to promote industrial development since 1945, both in the advanced and the newly developing countries. In this country it is particularly necessary in order to relieve or avoid congestion in the bigger cities and to ensure the dispersal of industries over all suitable locations. The primary functions which the industrial estates will perform will be to make developed sites available to industrialists, in well defined locations, on convenient terms for setting up

factories, provide utilities such as roads, water and power supply, sewage disposal, and transport facilities. Government expenditure on industrial estates will eventually be recovered, but no substantial recovery of capital expenditure is envisaged during the Plan period.

141. Table 2 shows the distribution of the proposed government financed development expenditure of Rs. 920 million between industry groups, and regions of the country.

TABLE 2

Government-financed investment in large scale industries, 1960-61 to 1964-65

	(Million Rupees)
East Pakistan :	
Large sugar mills	60
Jute mills, new and expansion	100
Particle board and hard board	16
Paper and newsprint	25
Printing	2
Nitrogenous fertilizer	180
Insecticides and pesticides	5
Dyes	15
Drugs and pharmaceuticals	3
Expansion of cement industry	20
Steel manufacturing	55
Heavy engineering	3
Miscellaneous machinery	4
Ship-building	15
Film Development Corporation	5
Agricultural and industrial waste	6
Industrial estates	60
Sub-total—East Pakistan	574
Karachi :	
Steel manufacturing	90
Heavy engineering	2
Sub-total—Karachi	92
West Pakistan :	
Steel manufacturing	25
Printing	3
Nitrogenous fertilizer	150
Coal carbonization	15
Carbon black	2·5
Acetylene, acrylonitrile and PVC	12·5
Expansion of cement industry	16
Steel re-rolling, steel foundry and non-ferrous foundry	13
Machine tools	2
Industrial estates	15
Sub-total—West Pakistan	254
Total—Pakistan	920

Of this amount about Rs. 530 million is expected to be invested by PIDC in its own factories, Rs. 290 million by PIDC in private enterprises or enterprises with private participation, Rs. 25 million by other public enterprises and Rs. 75 million by the Provincial Governments.

142. Except for industrial estates, which will be established by the Provincial Governments, the proposed programme in the public sector will need to be undertaken by the Central Government subject to the stipulation that private enterprise will be encouraged to take up the execution of the programme to the maximum possible extent. There is a particular need for expansion of private investment in the jute industries, and government participation on a considerable scale is proposed only in order to accelerate the growth of this vital industry. Arrangements have already been made for substantial participation of foreign capital in the carbon black plant and in the pharmaceutical industry. The several schemes for the utilization of natural gas will require large investments in foreign exchange, the right to utilize patents, and a high degree of technical and managerial skill, all of which will require foreign private capital collaboration. The Plan proposes public participation in establishment or expansion of productive capacity for machinery in East Pakistan because of the possibility that the proposed programme may exceed the financial and technical capacity of local private investors. Similar considerations apply to the programme for utilizing industrial and agricultural waste. Public investment outside East Pakistan will be limited to schemes which are either of essential national interest or have clear economic advantages. Such schemes are the completion of the Multan fertilizer factory, a coal carbonization plant, and the utilization of natural gas for petro-chemical industries. Investment proposed for Karachi includes government participation in the steel mill, and minor investments in Karachi Shipyard. The Plan assumes that some Rs. 200 million will be available through the sale to private owners of a number of existing projects of the Pakistan Industrial Development Corporation. If a larger contribution from private enterprise, domestic or foreign, is forthcoming for the execution of the programme, financial resources may be released for schemes which may need to be included in the programme at a later stage.

Small and medium scale industries

143. The First Plan recognised the importance of small and medium scale industries and made a provision of Rs. 86·5 million in the public sector. Implementation, however, fell far short of objectives, and the major problems of small industries remained unsolved because of lack of a concerted effort to tackle them. These problems are weakness in

organization for production and marketing; shortage of raw materials, spares and equipment; credit difficulties; inadequate marketing facilities; lack of standardization, and deficiencies in production facilities.

144. In the Second Plan, the governing principles for the development of small industries will be:

(*i*) to adapt small industries to changing technological, economic, and social conditions ;

(*ii*) to stimulate production of implements and equipment required for agriculture;

(*iii*) to encourage the processing of indigenous raw materials;

(*iv*) to create additional employment opportunities;

(*v*) to modernize such existing units as have sound economic prospects ;

(*vi*) to promote speed of modernization by encouraging growth of small industries in rural areas generally, and in particular wherever resources and markets are available;

(*vii*) to bring about a closer relationship between the small and larger industries, through, for example, the production of spares and accessories or components for large-scale industry or through providing facilities for the maintenance and repair of equipment in use either by large scale industries or in other sectors of the economy; and

(*viii*) to preserve and promote traditional arts and crafts.

145. For the effective implementation of the programme it is essential that responsibility be clearly defined and in no way be blurred. Development of small industry within each Province will be the concern of a Provincial Small Industries Corporation. Because of the importance to the economy as a whole, however, the Central Government has a significant part to play in the development of small industries and will determine national policies, coordinate activities and fix priorities of development, arrange for foreign assistance, conduct or arrange for research and training programmes and for the dissemination of information. Commercial functions of the Central government will be credit operations (liaison with financial institutions, and advice on credit operations), interprovincial trade, international marketing, foreign and national exhibitions, standardization and quality controls, and assistance to the Provincial Corporations in the purchase of machinery, equipment, and materials. A national small industries advisory council, and advisory panels on individual industries will need to be created.

146. The activities of Provincial Small Industries Corporations fall in two broad categories : (*i*) technical and management services, and (*ii*)

commercial services. Technical and management services will be provided along the following lines :

(*i*) Small industries service centres for selected industries will provide advisory service and demonstrations on technical processes and use and improvement of equipment, training in business management, research in use of indigenous materials, and surveys of industrial prospects. Rural industries centres—one in each Province—are at present being set up with foreign assistance and will help in these tasks. These centres will assist in training rural industrial extension officers.

(*ii*) Small industries extension services will serve areas where such industries are or can be concentrated; mobile extension services will serve remote areas.

(*iii*) Pilot projects will be set up to demonstrate possibilities of new industries on an experimental basis.

(*iv*) A provincial design centre will undertake research on industrial design and handicrafts collaborating closely with existing arts and crafts institutions.

147. Commercial services will include the following principal functions:

(*i*) Production facilities, including common facilities centres and mobile common facilities units, and small industrial estates. These production facilities may have to be started by the Corporations but will be transferred to private or cooperative enterprise as feasible.

(*ii*) Supply and marketing services, including sales and display centres to market small industries products and display modern designs, patterns and suitable equipment; grading and inspection to ensure standardized quality of products; and supply of materials and equipment, especially imported supplies, which will be sold to small industries by the Corporations to the extent necessary.

(*iii*) Credit services, including loans for modernization and extension, and credit for purchase of raw materials and for marketing purposes. The cooperation of existing financial institutions will be enlisted, but direct credit in kind (raw materials or pre-payment of products to be marketed) and, to a more limited extent, to finance equipment on a hire-purchase basis, will also be provided by the Corporations.

148. The technical and management services and most of the commercial services will be available to both small and medium scale industries. Credit facilities, however, in so far as they need to be underwritten or provided directly or indirectly by the Corporations, will be extended only to the small scale industries.

149. The total cost of the small industries programme is estimated at Rs. 750 million, Rs. 500 by the Small Industries Corporations (as shown in Table 3), and Rs. 250 million by private enterprise.

TABLE 3

Expenditure of the small and medium scale industries programme, 1960-61 to 1964-65

(Million Rupees)

	No. of units	East Pakistan	West Pakistan	Total
Technical and management service	184	99	93	192
Production facilities	116	36	25	61
Supply and marketing services	103	76	57	133
Credit services	...	35	25	60
Training	...	3	3	6
Informational aid	...	2	2	4
Design centres	2	1·5	1·5	3
Advisory board and panels	...	0·5	0·5	1
Provincial organization headquarters and regional offices	...	20	20	40
Total ...	405	273	227	500

150. The provision for supply and marketing services includes a sum of Rs. 100 million for the purchase of materials and equipment. This, together with the provision of Rs. 60 million for credit services, will constitute a revolving fund which will be raised through private financial institutions. Direct government investment for the promotion of small industries will be Rs. 250 million. Expenditure estimated at Rs. 90 million will be incurred as the recurring costs of small industries servicing units ; this amount is classified as non-development expenditure.

151. The programme involves the setting up of some 400 servicing units. The great majority of these will be new units, although some of the existing units run by the Provincial Directorates of Industries may be taken over and incorporated in the programme. Most existing units, however, will need to be reorganized. The execution of the programme will require a strenuous effort to find staff of the requisite quality to man these units. The programme will be able to move ahead no faster than the staff training facilities that can be provided, the details of which are still to be worked out.

Expected results of the industry programme

152. The results expected from industrial development during the Plan period are improvement in the supply position of essential consumer and producer goods, increase in national income, additional employment opportunities, contribution to the solution of the country's balance of payments

roblem, and a foundation for gradual transformation of the national economy rom a traditional and predominantly agricultural pattern to one based on nodern technology and capable of meeting the awakened aspirations of the eople.

153. The Plan does not envisage any increase in expenditure on the mport of consumer goods. On the other hand provision is made for an ncreased supply of raw materials. The increase in the demand for essential onsumer goods will be met by indigenous production and the programme has een so formulated that the country will not be confronted with any serious hortage of such goods. Nevertheless, a measure of austerity in consumpion will continue to be necessary in the interest of encouraging the sablishment and growth of producer goods industries to make the country ss dependent on imports for development. The manufacture of a series of roducer goods and spare parts within the country is included in the proramme. Table 4 shows the physical production targets for some of the main onsumer and producer goods industries.

TABLE 4

Physical production targets in large and medium scale industries

Industry	Unit	1959-60	1964-65
***ood manufacturing* :**			
White sugar	**Tons**	**150,000**	**300,000**
Edible vegetable oils	„	**150,000**	**250,000**
Vegetable ghee	„	**22,000**	**50,000**
Tea	**Million lbs.**	**54(*a*)**	**64**
Cigarettes	**Million**	**9,000**	**15,000**
***extiles* :**			
Cotton spinning	**Million lbs.**	**380**	**520**
Jute manufactures	**Tons**	**250,000**	**380,000**
***per and board* :**			
Paper	**Tons**	**40,000**	**80,000**
Board	„	**13,000**	**25,000**
***hemical industries* :**			
Ammonium sulphate	**Tons**	**42,000**	**50,000**
Superphosphate	„	**1,500**	**18,000**
Ammonium nitrate	„	...	**103,000**
Urea	„	...	**176,000**
Soda ash	„	**25,000**	**74,000**
Caustic soda	„	**4,500**	**35,000**
***on-metallic minerals* :**			
Cement	**Thousand Tons**	**1,050**	**3,000**

(*a*) Average production during 1955-56 to 1959-60 ; production in 1959-60 is 57 million lbs.

154. The contribution to gross national product is estimated to increas by about 60 per cent from large and medium scale industries and by abou 25 per cent from small scale industries. As a result, industry will account fo over 30 per cent of the planned increase in the gross national product. Average daily employment is estimated to increase from 440,000 in 1959-60 t about 620,000 by 1964-65 in large and medium scale industries and by a even larger number in small scale industries. In addition to meeting th increased requirements of consumer goods and to replacing some of the producers goods which would otherwise have to be imported, the industry programme is expected to provide an additional foreign exchange earning o at least Rs. 200 million through the export of manufactured goods.

TABLE 5

Development programme for selected industries during the Plan period

(Million Rupee

Industry	Total	Modernization	New	Government financed	Privatel finance
Dairy products	3	0	3	0	3
Canning and preservation of fruit and vegetables	9	3	6	0	9
Canning of fish and meat ...	16	0	16	0	16
Wheat and grain milling ...	30	20	10	0	30
Rice milling	35	15	20	0	35
Bakery products, confectionery, honey	3	2	1	0	3
Sugar, large mills	166	26	140	60	106
Sugar, *khandsari*	26	0	26	0	26
Edible oils (including copra, vegetable ghee)	40	20	20	0	40
Tea	20	10	10	0	20
Salt	10	3	7	0	10
Cold storage	10	0	10	0	10
Livestock foods	7	0	7	0	7
Total food manufacturing	375	99	276	60	315
Beverages	4	2	2	0	4
Tobacco manufactures	20	5	15	0	20
Wool and worsted, spinning, weaving	10	7	3	0	10
Cotton spinning and weaving ...	365	50	315	0	365
Sericulture, reeling and filature ...	2	0	2	0	2

(Million Rupees)

Industry	Total	Modernization	New	Government financed	Privately financed
Silk and art silk weaving	5	5	0	0	5
Jute manufacturing	260	15	245	100	160
Dyeing, other processing of textiles	40	30	10	0	40
Handloom, artisan weaving	30	30	0	0	30
Hosiery, other knitted goods	2	2	0	0	2
Carpets	4	0	4	0	4
Specialized textile manufacture	10	2	8	0	10
Manufacture of textiles	728	141	587	100	628
Footwear	5	2	3	0	5
Apparel	5	4	1	0	5
Footwear and apparel	10	6	4	0	10
Plywood and tea chest	2	0·5	1·5	0	2
Saw mills, wood processing	6	1	5	0	6
Manufacture of wood and cork	8	1·5	6·5	0	8
Furniture	2	1	1	0	2
Particle board, hard-board	16	0	16	16	0
Paper, cardboard, strawboard and newsprint	42	4	38	25	17
Paper converting and packing	5	0	5	0	5
Pulp, paper, paper products	63	4	59	41	22
Printing, publishing	30	20	10	5	25
Tanning and curing	20	5	15	0	20
Leather goods (excluding footwear)	5	1·5	3·5	0	5
Leather and leather goods	25	6·5	18·5	0	25
Rubber tyres and tubes	10	0	10	0	10
Rubber manufactures	2	0	2	0	2
Rubber products (excluding footwear)	12	0	12	0	12
Fertilizers	330	0	330	330	0
Polythdene	25	0	25	0	25
Soda ash, caustic soda by-products	60	5	55	0	60

(Million Rupees)

Industry	Total	Moderni-zation	New	Government financed	Privately financed
Sulphuric acid	8	2	6	0	8
Other industrial chemicals	10	0	10	0	10
Insecticides, pesticides	10	0	10	5	5
Dyes	15	0	15	15	0
Drugs and pharmaceuticals	35	10	25	3	32
Toilet soap, cosmetics, toilet articles	5	2	3	0	5
Cellulose and other paints	7	3	4	0	7
Miscellaneous (essential oils, starch, tanning)	9	2	7	0	9
Matches	5	2	3	0	5
Coal carbonization	30	0	30	15	15
Chemical Industries	549	26	523	368	181
Oil refinery	165	10	155	0	165
Carbon black	35	0	35	2·5	32·5
Other petro-chemicals (acetylene, acrylonitrile, PVC, etc.)	33	0	33	12·5	20·5
Petro-chemical industries	233	10	223	15	218
Structural clay products (bricks, tiles, fire-bricks)	30	4	26	0	30
Glass (notably scientific laboratory glass)	5	2	3	0	5
Ceramics	8	3	5	0	8
Cement	210	25	185	36	174
Asbestos cement products	2	0	2	0	2
Water and sanitary fittings, miscellaneous building materials	20	2	18	0	20
Non-metallic mineral products	275	36	239	36	239
Steel production	325	0	325	170	155
Ferro-chrome	3	0	3	0	3
Steel re-rolling	14	5	9	9	5
Steel foundries	13	8	5	3	10
Non-ferrous foundries	7	6	1	1	6
Basic metal industries	362	19	343	183	179
G. I. pipes	9	2	7	0	9
Wires, Zari wire netting etc.	3	1	2	0	3

(Million Rupees)

Industry	Total	Modernization	New	Government financed	Privately financed
Other metal building material ...	10	2	8	0	10
Heavy engineering steel structures	10	2	8	5	5
Cutlery, utensils, office equipment, others	5	2	3	0	5
Gas appliances	5	1	4	0	5
Metal fittings, water meters, etc.	6	1	5	0	6
Hand tools, miscellaneous ...	4	1	3	0	4
Metal testing laboratories ...	1	0	1	0	1
Metal products (excluding machinery)	53	12	41	5	48
Agricultural machinery and tools	13	3	10	0	13
Stationary and marine diesel engines	15	5	10	0	15
Textile machinery and spares ...	11	2	9	0	11
Oil expellers	5	5	0	0	5
Pumps	9	2	7	0	9
Machine tools	20	5	15	2	18
Sewing machines	5	2	3	0	5
Machines n.o.s.	17	1	16	4	13
Machinery (excluding electric machinery)	95	25	70	6	89
Radios (parts, assembly) ...	4	0	4	0	4
Electric lighting	5	0	5	0	5
Electric appliances	8	2	6	0	8
Wires and cables	15	0	15	0	15
Others (motors, switchgear, transformers, fans, etc.)	30	5	25	0	30
Electric machinery, etc.	62	7	55	0	62
Shipbuilding and repairs ...	35	10	25	15	20
Automobile spare parts ...	6	0	6	0	6
Automobile repair and assembly	10	5	5	0	10
Miscellaneous transport equipment	5	0	5	0	5
Bicycles and parts	10	2	8	0	10
Transport equipment	66	17	49	15	51
Jute-baling	2	2	0	0	2
Cotton ginning	30	20	10	0	30
Scientific instruments	3	3	0	0	3

(Million Rupees)

Industry	Total	Modernization	New	Government financed	Privately financed
Sports goods	4	4	0	0	4
Film industry	15	8	7	5	10
Agricultural and industrial waste	30	0	30	6	24
Miscellaneous production (grinding wheels, collapsible tubes, lubricants, etc.)	7	1	6	0	7
Testing and research	2	2	0	0	2
Miscellaneous industries	93	40	53	11	82
Industrial estates	75	0	75	75	0
Small industries public investment	250	0	250	250	0
Total industries ...	(*a*) 3,390	478	2,912	1,170	2,220

(*a*) Excluding Rs. 500 million for the working capital of large scale industries and Rs. 160 million for the small scale industries revolving fund.

CHAPTER 10

FUELS AND MINERALS

ADEQUATE sources of heat, electrical and mechanical energy, and of industrial raw materials are essential for economic development. Explorations and surveys over the past twelve years have revealed the existence of large fields of natural gas, substantial seams of coal and peat, and potentially valuable deposits of a variety of other minerals. The task before the country is to develop the proved mineral resources as rapidly as possible, and to accelerate the geological investigation of unmapped areas and of identified but unproved deposits.

2. The need to import fuels causes a heavy drain on the foreign exchange resources of the country. The imported fuels cost Rs. 303 million in foreign exchange during 1959 : Rs. 233 million for petroleum products, and Rs. 70 million for coal and coke. Potential foreign exchange savings through the substitution of domestic for imported fuels will be very much larger in the future because, as the economy grows and becomes increasingly mechanized and industrialized, the demand for energy in all forms will rise steeply. If internal fuel resources are not rapidly developed, there will be either an excessive drain on foreign exchange resources, or a curtailment of the rate of economic growth, or both. Little, if any, of the increased demand for energy can be met from forests or farms. Some of the forest lands are already suffering from overcutting, and the widespread practice of using cow dung as fuel rather than as manure continues to reduce agricultural production. The emphasis must, therefore, be on the development of mineral fuels, both to reduce the relatively uneconomical use of agricultural and forest resources for heating and cooking, and to meet the growing demands for energy.

3. There are possibilities of using indigenous minerals as raw materials for chemical and metallurgical industries, as building materials or as commodities which may be exported in the raw, semi-finished, or finished state.

4. Small-scale extraction and processing of minerals, as at present undertaken, are primitive and inefficient ; productivity is low and costs are high. It is through relatively large-scale and well managed operations that substantial reductions in costs and increase in productivity can be achieved, and indigenous products made cheaper for domestic consumers and more competitive in world markets.

5. A further reason for investing substantially in mineral exploration, extraction, and processing is that most mineral deposits are to be found in the relatively less-developed regions of the country. The development of prosperous mining industries can contribute significantly to the advancement of these areas. In Baluchistan and the Frontier Regions particularly, mineral exploitation offers perhaps the only chance of rapid economic development.

6. Any assessment of the mineral potential of the country at this stage must remain incomplete. Much of the country has not been covered by

detailed geological surveys, mapping, or exploration. Many deposits lie in such inaccessible areas that not enough is known about them ; in some regions, there are indications of valuable metalliferous and other minerals, but their potentialities have yet to be determined.

Progress under the First Plan

7. The major objectives of the First Plan in mineral development were :

(*a*) the acceleration of the geological investigation of the country's underground resources ;

(*d*) the rapid development of the most promising known deposits ; and

(*c*) the training of mining personnel and improvement of mining practices.

The Plan provided for an investment of Rs. 474 million for the development of mineral resources, Rs. 124 million for the public sector and the balance for the private sector. The bulk of the proposed investment in the private sector was for oil and gas prospecting. The amount actually invested in oil exploration was a little higher than Plan estimates. The results achieved are discussed later in this chapter.

8. Approximately Rs. 48 million have been spent on the expansion of coal production, and Rs. one million on investigation of peat. The investment in coal has not yet begun to yield results, owing in part to slow progress in tunneling and in procuring equipment and explosives, and in part to delays in setting up the necessary administrative machinery to implement the proposals. A comparison of the production of certain minerals in 1955 and 1959 is given in Table 1 below.

TABLE 1

Domestic production of selected minerals, 1955 *and* 1959

(Thousand tons)

	1955	1959
Coal	533	723
Chromite	28	16
Fire clay	8	14
Gypsum	28	85
Limestone	886	925
Rock salt	140	157
Silica sand	9	22

Source : Bureau of Mineral Resources.

Long-term development objectives

9. Over the next ten to twenty years, efforts should be concentrated on obtaining complete knowledge of the country's mineral resources. It will be necessary to achieve high levels of competence and performance in mineral technology and training, and to utilize as effectively as possible all deposits of economic value that are discovered. The means to these ends include : (*i*) a vigorous and continuing programme of surveying, mapping, and prospecting by the Geological Survey of Pakistan, or by other specialist agencies engaged for this purpose ; (*ii*) the strengthening of university geology departments, the establishment of one or more technical institutes to produce mining engineers and supervisors, and systematic on-the-job training ; and (*iii*) the revision of mining laws so as to encourage the investment of private capital in mineral extraction, while ensuring that wise extraction policies are followed, and high standards of safety and performance maintained.

10. The extent to which new deposits of oil, natural gas, high-grade ore, coking coal, or other important minerals may be discovered is unpredictable, but present knowledge permits tentative long-range targets. Full use will be made of all economically exploitable fuel resources, with emphasis on widespread distribution of natural gas in both the Provinces. Where feasible, gas will be substituted for coal and fuel oil in industry, and for coal, kerosene and wood, now used as household fuels. Natural gas, exported in liquified form, may become a significant source of foreign exchange earning. Most important, natural gas will be used as the basis for developing a large-scale petro-chemical industry.

11. In the field of inorganic minerals, effort will be made to discover whether some combination of iron ore, coal, and other fuels will permit the economic operation of an integrated steel plant. The production of exportable minerals such as chromite will be expanded, and increasing use made of these minerals within the country. Other minerals which can be used in construction, such as asbestos, gypsum, marble, limestone, glass sand and fire-clay, will be exploited for this purpose, and new industries to process and use them will be established.

Second Plan development programme

12. The Plan programme for mineral development is summarized in Table 4 at the end of this chapter. It provides for an expenditure of Rs. 850 million, Rs. 124 million in the public sector, Rs. 176 million in the semi-public sector and Rs. 550 million in the private sector.

Exploration, prospecting, and development

13. From 1957 onwards the activities of the Geological Survey of Pakistan were greatly expanded. Good progress was made in building up a strong and effective organization.

14. The Geological Survey has made considerable progress in surveying and mapping the country, but shortages of trained manpower and of drilling

equipment have limited the scope of its operations. The Survey will be furt
strengthened and expanded during the Plan period. Its professional st
will be increased by about 25 per cent, and adequate facilities will be provic
for the training of personnel in geology and geophysics.

15. The Geological Survey will continue to carry out geological mapp
and prospecting for minerals in unexplored areas; to conduct surveys,
vestigations, and borings of deposits which offer prospects for developmen
and to provide geological and geophysical assistance to dam constructi
and water storage schemes. The findings of the Survey will be systematica
made public in the form of reports, maps, and sections suitable for use
mining development.

16. In its search for new deposits in promising but relatively unexplor
regions, the Geological Survey will focus attention on the following are
where numerous mineral deposits have been reported: (*i*) the Haza
Swat-Dir region; (*ii*) the northern part of the Chagai District; and (*iii*) Waz
istan—Kurram region. In making detailed investigations of known depos
whose development potential has yet to be determined, the Survey will co
centrate on iron ore deposits at Kalabagh—Chichali, in Chitral, and
Western Salt Range; coal deposits at Jhimpir, Khost-Shahrig and in the S
Range; and chromite ores in Khanozai—Hindubagh area. The Surv
will be assisted by the United Nations Special Fund in making an intensi
three-year study of coal, iron, and other mineral resources.

17. A sum of Rs. 463 million was invested in oil exploration betwe
April 1955 and September 1959. In 1959 oil was struck near Balkass
south-west of Rawalpindi. The reserves are, however, small. The d
covery has resulted in an increase in domestic output by about 15 per cent.

18. Domestic production of crude petroleum and petroleum produ
at the beginning of the First Plan and in 1959 is shown in Table 2 below.

TABLE 2

Domestic production of petroleum, 1955 *and* 1959

(Million gallons)

	1955	1959
Crude oil ...	72	82
Petroleum products :		
Motor spirit	19	25
Diesel oil	14	18
Kerosene	3	4
Furnace oil	28	26

Source: Bureau of Mineral Resourc

19. The search for oil and gas, which constituted 88 per cent of the fuels and minerals allocations of the First Plan, will continue to dominate commitments in the Second Plan. Exploration will continue on a large scale, with its focus in West Pakistan shifting from the central and lower Indus Basin to the Dera Ismail Khan region, and to the areas near the Potwar basin, where oil is currently being produced. Exploration in East Pakistan will increase substantially, especially in the northern and eastern districts. On the basis of present knowledge, it appears likely that well over half of all new investment in oil and gas prospecting may take place in East Pakistan. The Government will continue its policy of encouraging prospecting.

Gas

20. The search for oil uncovered valuable fields of natural gas. The best known and most important of these fields is at Sui, with reserves of high-quality gas now estimated at 6,000,000 million cubic feet. Of comparable size, estimated at 3,500,000 million cubic feet, is the recently discovered field at Mari, which lies across the Indus from Sui. These two fields are capable of providing West Pakistan with ample quantities of gaseous fuel and petro-chemical raw materials for many decades. A number of other gas fields have been discovered in West Pakistan, but these are relatively small. Table 3 below shows the present position as to the location and composition of gas reserves in the country.

TABLE 3

Estimated gas reserves and their composition

West Pakistan :								
Location :	Sui	Mari	Uch	Dhulian	Khairpur	Khand-kot	Zin	Mazarani
				(Million million c.ft.)				
Estimated reserve ...	6·00	3·50	2·50	1·70	0·25	0·20	0·10	0·03
				(Per cent)				
Composition :								
Methane ...	90·1	72·3	27·25	81·5	12·2	79·2	46·1	88
Ethane ...	0·85	0·2	0·7	12·0	0·2	1·1	1·4	2
Propane ...	0·1	...	0·3	4·0	0·1	0·2	0·15	1·7
Butane and higher	0·25	...	0·3	2·0	...	0·4	0·15	...
Nitrogen ...	3·5	21·5	25·2	...	16·9	16·6	8·5	8
Carbon dioxide	4·5	6·0	46·2	0·5	70·6	2·5	44·7	0·3
Hydrogen sulphide Gr/100 c.ft.	92·2		33·5		2·0	30·8	13·3	13
Calorific value BTU/c.ft.	935		...		...	832		...

***East Pakistan* :**

Location :	Sylhet	Chattak
	(Million million c.ft.)	
Estimated reserves	0·28	0·02
Composition :	(Per cent)	
Methane	96·6	96·5
Ethane	2·2	3·5 by difference
Propane	2·6	
Nitrogen	...	...
Carbon dioxide	6·4	...
Hydrogen sulphide	Not detectable	...

Source : Bureau of Mineral Resources.

21. Gas pipelines of sixteen-inch diameter have been laid from Sui to Karachi (347 miles) and from Sui to Multan (214 miles) ; the former feeds almost all the major industries in Karachi ; the latter will feed the new power station, fertilizer plants, and other industries at Multan and elsewhere. The Sui-Karachi transmission line has proved a success : gas consumption has increased at an average rate of over 25 per cent each year, the present off-take reaching a peak of nearly 50 million cubic feet per day. It is necessary now to extend gas transmission to the northern districts of West Pakistan, which have the resources for industrial development except adequate fuel. Existing industry in these districts mainly depends on imported fuel (oil or coal), or upon local fuels which are inadequate in quantity and quality ; hydro-electric power needs to be supplemented by thermal power in low-water months and during peak-load hours. To meet the local demand for fuel and the expected increase resulting from new development activities, and to reduce the burden of fuel movement on the railways, gas pipelines must be built to connect Lyallpur, Lahore, Jhelum, Daudkhel, and Rawalpindi. Alternative proposals for the system of gas pipelines are still under consideration, but the need is urgent. If work is started in 1960, it can be completed by 1963.

22. The Karachi Gas Company started the distribution of Sui gas in 1956. Further expansion in Karachi will be necessary, and gas distribution must be started in Multan, Lyallpur, Lahore, Rawalpindi, and other major towns. If these arrangements are promptly made, the use of gas in place of imported fuels can save Rs. 45 million in foreign exchange a year from 1963, and within ten years some Rs. 80 million a year. The use of Sui gas is expected to increase from 22,500 million cubic feet in 1959 to over 100,000 million cubic feet in 1965.

23. In East Pakistan, the most important natural gas field so far found is near Sylhet; reserves of high-quality gas are estimated at 280,000 million cubic feet. A smaller field, estimated at 20,000 million cubic feet, has also

been discovered near Chattak. The combined reserves of these two fields have already been committed to existing industrial projects. There is, however, a prospect of discovering additional fields during the Plan period. If this materializes, the fuel supply will be substantially improved.

24. The Sylhet gas will begin to be used in 1961, when the new fertilizer plant at Fenchuganj comes into operation. The Chattak gas will come into use in 1960 on the completion of an eleven-mile pipeline to the cement factory. The combined output of these two fields is projected at 7,500 million cubic feet in 1965. If additional natural gas resources are discovered in East Pakistan, the rate of production of these two fields may be increased and the supply of gas extended to additional consumers.

Coal

25. Deposits of coal are found in a number of areas in West Pakistan, but their extent cannot yet be accurately estimated, owing to lack of detailed mapping and prospecting. It is known that sizeable deposits exist at Makerwal, and in the Western Salt Range; at Shahrig, Deghari, and in the Sor Ranges south and east of Quetta; and in the vicinity of Jhimpir in the Hyderabad Division. The coal now mined at Makerwal and near Quetta is mostly in narrow seams, and is located at levels where working presents a challenge to mechanization and scientific exploitation. It has an average heating value of 10,000 BTU per pound; it is friable, and relatively high in sulphur and ash content. It is, therefore, unsuitable for conversion into metallurgical coke but by subjecting it to low temperature carbonization, briquetting and curing, a coke briquette can be produced which can be used in foundries and lime kilns of the sugar mills in West Pakistan where imported coke is being used at present. It can also be used in brick kilns and boiler plants. By converting it into coke briquettes, it can also be used in foundries and in lime kilns of sugar mills. In East Pakistan, a deposit of coal has been reported from Bogra and Rajshahi but its nature and extent are not yet known.

26. The Second Plan proposes to increase the output of coal from 723,000 tons in 1959 to 1,500,000 tons in 1965, a more than 100 per cent increase. This will result in an annual saving in foreign exchange of Rs. 30-40 million. It will substantially reduce, but may not completely eliminate, imports of coal, which amounted to 1·34 million tons in 1958.

27. The bulk of the additional output will come from new mines in the Sor Range and adjacent areas south of Quetta. The resulting increase in output from all mines in the Quetta area is projected at approximately 450,000 tons. The PIDC will also undertake an expansion of its existing operations at Shahrig, east of Quetta, and at Makerwal, southwest of Daudkhel. Production at Shahrig will be increased by more than 100,000 tons per year, and at Makerwal, where substantial investments have already been made, by another 100,000 tons per year. The balance of the production increase is expected to be realized through operations in the Salt Range (100,000 tons) and in the Jhimpir-Meting coal fields near Hyderabad (50,000 tons).

28. The production target of 1·5 million tons of coal per year by the end of the Plan period is achievable, but it will require intensive efforts by private operators and the PIDC, as well as coordinated support of government agencies responsible for providing the necessary power, roads, rail transport, and other essential services. A coal-fired power station will be established at Quetta, which will supply electricity to the mines in the Sor Range. Provision has been made in the West Pakistan road programme for constructing two major roads to open up the Sor Range area, to be financed by a cess levied on the coal carried over them. Because the present capacity of the rail connection through the Bolan Pass is inadequate for transporting large additional tonnages of coal from the Quetta plateau to the Indus Plain, an increase of capacity will be necessary. Provision is made in the industries programme for setting up a coal carbonization plant near Sibi, at a cost of Rs. 30 million. This unit will convert approximately 100,000 tons of coal dust per year into coal briquettes and coal distillation products. Coal briquetting plants will be established both in the private and public sectors, in addition to the existing plant at Quetta.

29. The Bureau of Mineral Resources will be suitably expanded to assist the private sector in changing over from primitive, small-scale, and often dangerous mining practices to more efficient modern technology. This means that small mining units will have to be consolidated. Assistance to the private sector in obtaining finance for new equipment is expected to be available through the PICIC. The Bureau of Mineral Resources will assist private companies in securing foreign exchange, and will provide technical information and essential public services.

Peat

30. The programme in the First Plan for the exploitation of peat deposits in East Pakistan has produced a series of studies on the extent of these deposits and the prospects of their exploitation. Geological surveys have revealed peat deposits in eight different districts. The most promising yet discovered is in a swampy area of approximately 200 square miles in the Faridpur District, with a potential supply of 160 million tons of air-dried peat of heating value of 6,000-7,000 BTU per pound. Another promising deposit has been located in Khulna District. The major physical obstacle to exploitation of this still un-utilized fuel resource is the fact that most of it lies under several feet of water for a good part of the year.

31. The Plan provides for the production of about 200,000 tons of air-dried peat a year from the Faridpur deposits; about 30,000 tons per annum will be converted into semi-briquettes for distribution to small consumers. The exploitation of the peat deposits will involve extensive dike-building and earth-moving; these operations will be linked with de-silting river channels and reclaiming the agricultural land. The large-scale use of peat involves converting industrial boilers from coal to peat. On the assumption that peat will be recovered at an economic price either in Faridpur or Khulna Districts and will be more extensively exploited, a provision of Rs. 18 million,

including Rs. 5·5 million in foreign exchange, is made in the Plan. Assuming a minimum total cost of Rs. 50 per ton of imported coal, and a heating equivalent of 2·1 tons of peat per ton of coal, the operation will save about Rs. 5 million of foreign exchange per annum.

Iron ore

32. Of the inorganic minerals, iron ore is of greatest interest to the economy. The large and ever-expanding needs for iron and steel products make it increasingly important to seek some economic means to produce iron and steel. The major question to be answered during the Plan period is whether the conversion of indigenous ores into steel is economically feasible. The largest known deposits are near Chagai in north-west Baluchistan, at Dammar Nissar in Chitral, and at Kalabagh and Chichali in north-west Punjab. Of these, the first two are relatively high-grade, with more than 60 per cent iron content, but their quantity has not yet been assessed, and they are located in areas at present difficult of access. The deposit near Kalabagh is a much lower-grade ore, varying from 30 to 35 per cent in iron content, but is large and relatively accessible. An examination is now in progress, with United Nations assistance, of the technical and economic aspects of various schemes for establishment of a steel mill based on indigenous coal and iron ore. Research on the feasibility of a steel mill will also be continued by the PIDC and the Bureau of Mineral Resources. That the country should be able in the near future to produce its own steel is a matter of highest urgency. Its importance to the economy cannot be over-rated.

Chromite

33. Second in importance to iron among the metallic minerals known to exist in the country is chromite, which has been mined for many years in the Hindubagh area of the Quetta Division, with an annual output varying between 16,000 and 23,000 tons in recent years. Chromite-bearing rocks are also known to exist near Dalbandhin in north-west Baluchistan and in North and South Waziristan. Although the variable quality and inaccessibility of many of the deposits present obstacles to economical extraction, a quintupling of the present levels of production of chromite may well be technically feasible. It is estimated that the annual production will be increased to 35,000 tons of high grade ore during the Plan period. Even this relatively moderate expansion will seriously tax existing transport facilities, which will need further expansion.

34. It is believed that a sustained production level of 100,000 tons of high-grade chromite per year is technically possible. In addition, it may be feasible, by setting up a beneficiating plant, to exploit the large quantities of low-grade ore at present wasted at the mines. Such developments, however, would require heavier investments in transport facilities than are proposed in the Plan.

Other minerals

35. The other metallic ores which have been identified in the country are aluminium, antimony, copper, gold, lead, manganese, mercury, potassium, tungsten, uranium, and zinc. Little is known about the extent of their occurrence, and no large-scale deposits have been proved. The most promising of the known deposits are believed to be those of antimony, aluminium and manganese. Antimony has been extracted for a number of years from a small mine in Central Chitral, and production can be increased if transport problems can be solved. Bauxite has been found in deposits believed to be of substantial size in the Hazara District, and West of Rawalpindi ; their economic possibilities will be assessed. Promising deposits of manganese ore have been discovered near Las Bela, in southern Baluchistan ; exploitations and test drilling are to be made during the Plan period.

36. Additional minerals deposits of possible economic importance are those of asbestos, glass and, gypsum, kaolin, marble, rock salt, sulphur and mineral brines. Glass sand, gypsum, and rock salt lie in relatively large deposits which are being exploited on a commercial scale in West Pakistan. Asbestos is known to occur in several remote areas in Mohmand and Waziristan Agencies, but the extent of these deposits has yet to be established. High-quality marble occurs at a number of places in the Peshawar and Rawalpindi Divisions ; commercial quarrying appears to be feasible. Sulphur exists in high-grade ores at Koh-i-Sultan in north-west Baluchistan, and can also be extracted from indigenous coal, natural gas, and gypsum. Information is not at present available about the feasibility of exploiting the mineral brines discovered near Dhariala in the Salt Range, but they are known to contain significant quantities of boron, magnesium, and potassium, and are believed to justify further geological investigation. Limestone at St. Martin's Island, and other non-metallic minerals, have been found in East Pakistan, but the nature and extent of the deposits have yet to be assessed.

37. The country's growing requirements of fire clay, gypsum, glass sand, limestone, marble, and sulphur will be met by expanding production from the known deposits, as well as by exploiting new sources. For the most part, extraction will be the responsibility of the private sector. The Geological Survey and the Bureau of Mineral Resources will, however, expedite development by continued survey operations, and by special studies of the feasibility of exploiting particular deposits. It is proposed to install a a unit to recover 1,800 tons of sulphur per year from natural gas at Sui.

Role of the private sector

38. For maximum effect, the exploration of mineral resources must be a responsibility of both Government and private enterprise, because neither can do the job adequately without the support of the other. In recent years private prospecting has been hampered and discouraged by restrictive laws, delays, and uncertainties in obtaining permits and licences and lack of

firm policies and clear incentives designed to stimulate initiative. A notable exception has been in the field of oil and gas prospecting. Here, the resources of the Government and of eight oil companies have been harnessed with considerable success in the search for crude oil and natural gas.

39. The essential first step to expedite action was taken in June 1959, when the Government consolidated the responsibility for planning and coordination of mineral development in the Bureau of Mineral Resources. In addition to revising the mining laws, the Bureau is expected to issue exploration licences and leases ; sponsor technical studies and investigations of particular minerals ; collect and publish data on all phases of the mining industry ; coordinate mineral development with the provision of adequate water, power, and transport facilities ; encourage the participation of foreign capital in mineral development ; and ensure that adequate provision is made for the recruitment, training, and welfare of mining personnel. The Bureau is now reviewing and overhauling mining laws and regulations, so as to encourage active prospecting and rapid exploitation by private enterprise, under standards and safeguards which will ensure adequate protection of the public interest. The Pakistan Industrial Finance Corporation will provide credit facilities for the development of mineral resources by private enterprise.

Development of mining personnel

40. In mineral discovery and exploitation, as in all fields of economic development, the success likely to be achieved is closely related to the quality of the personnel engaged in the work. The country is now producing qualified mining engineers and geologists, but their numbers still fall short of needs ; moreover, geological and mining training is now conducted in separate locations and at a considerable distance from the mining areas. A college of mining will be established at Rawalpindi or Quetta ; it is necessary also to strengthen university departments of engineering and geology for the training of mining engineers and geologists.

41. Of comparable importance to the education of professional personnel is the training of supervisors, *sirdars*, and skilled workers. The need for providing training at this level will increase as mining programmes are expanded and as modern, large-scale and mechanized methods are adopted. Systematic programmes for on-the-job training will have to be incorporated into all major mineral extraction schemes. In addition, courses in mining technology at the sub-engineering level will be provided at the existing polytechnics, or at a separate mining institute near a mining area.

42. The conditions of labour in most mining operations are far from satisfactory. Workers are still relatively untrained, poorly equipped, badly housed, and employed through a system of agents who frequently exploit them. Because of the isolated location of mines and the arduous conditions of living and working, mine labour tends to have high turnover, to be migratory, and to work only seasonally in many places. Considerable attention will be given by the Bureau of Mineral Resources to the problems of

recruiting, hiring, housing, and training mine labour. As far as possible, contract labour will be replaced by directly employed workers. The Inspectorate of Mines will be expanded, safety standards will be tightened, and living conditions of workers improved. Increased mechanization, expanded use of electric power, and the introduction of modern mining methods will help to upgrade mine labour, to improve working conditions, and to stabilize employment.

TABLE 4

Development programme for fuels and minerals,

1960-61 *to* 1964-65

(Million Rupees)

	Public sector	Semi-public sector	Private sector	Total
Expansion of Geological Survey work ...	20	...	...	20
Training and technical services ...	8	...	4	12
U.N. assisted mineral exploration project	9	...	...	9
Special investigation of selected minerals	4	...	1	5
Oil and gas prospecting and development	80	...	240	320
Expansion of coal production	...	70	30	100
Peat development	...	18	...	18
Expansion of chromite production ...	1	...	5	6
Development of deposits and expansion of production of selected minerals	2	...	7	9
Natural gas transmission	...	75	225	300
Natural gas distribution	...	13	38	51
Total programme ...	124	176	550	850

CHAPTER 11

TRANSPORT AND COMMUNICATIONS

THE development of a country's transport system is both an index and a prerequisite of its economic growth. There is a close relationship between the volume of transport and the level of economic activity because each depends upon the other; an adequate and efficient system of transport is essential to the success of any plan of economic development.

2. The transport patterns of East and West Pakistan differ greatly. West Pakistan has a fairly well-developed railway system supplemented increasingly by road transport, while in East Pakistan the principal carriers are railways and inland waterways, the latter being the backbone of the transport system and handling about three-fourths of the total internal traffic of the Province. The country inherited at Independence, in proportion to its territory, a small part of the transport facilities : only 16 per cent of the total railway track mileage and 10 per cent of the surfaced roads in the sub-continent fell within Pakistan, and these were in poor shape because of the strains of the World War period, which were particularly severe in the strategic north-western and eastern areas now comprising Pakistan. The railways had huge arrears in track and rolling stock renewals ; roads needed immediate repairs and extensive improvements ; a large mileage of inland waterways in East Pakistan had silted up and badly needed navigational facilities. The new national boundaries cut across and reduced the value of the old railways and roads. Before 1955, no systematic development programme could be undertaken, and efforts were concentrated only on urgently-needed rehabilitation. Under the First Plan, an attempt was made to set the critical problem in a proper perspective, when it was realised that the available transport capacity was far short of the country's development requirements. It was recognised that much greater efforts and investments would be required to clear the great arrears of maintenance and replacement on all sectors of transport and to create additional capacity to meet the growing needs of the economy. But the achievement of these aims was so enormous a task that it could only be conceived as a long-term programme, extending over several Plan periods.

3. In the First Plan it was not found possible, in view of the many pressing claims on the limited resources, to allot more than Rs. 1,422 million to transport in the public sector, and this allocation had to be concentrated mainly on a programme of essential rehabilitation and improvement of the railways and other transport facilities, in an effort to keep the existing transport systems in operation. The situation is still serious : arrears of repairs and renewals remain large ; the shortage of transport capacity has not been appreciably reduced and the problem of creating additional capacity for smooth development of the economy is still conditioned by limitation of resources.

4. It appears essential that in order to have a clear conception of the country's present and potential transport needs, a long-term transport development plan should be evolved, postulating objectives and projecting a sound pattern for the country's transport system. The successive Five Year Plans would then be related to these long-term goals. For such a plan, a very serious drawback at present is the lack of relevant statistical data. The institution of comprehensive transport surveys in East and West Pakistan is, therefore, necessary in order to determine present and future requirements; how much of the current needs are being met by each mode of transport and to what extent should each be developed in the long run. A preliminary reconnaissance study was completed in East Pakistan in early 1960, and as a result a comprehensive survey by a combined team of foreign and Pakistan experts is to be undertaken to cover all forms of transport on a coordinated basis and to formulate a long term development plan. A similar survey should be carried out in West Pakistan as soon as possible. These surveys should indicate with some precision the extent of transport shortage in different regions and how it is preventing the fruition of the various economic and social development programmes. In the agricultural sector, for example, productivity remains low due *inter alia* to rural isolation; fertilizers, improved seeds and extension services do not reach many areas in time. Difficulties of transporting agricultural produce to market act as a disincentive to the grower ; reliable figures of spoilage or wastage resulting from poor transport are not available, but they are undoubtedly large. Manufacturing industry, too, suffers delays in getting delivery of raw materials or spare parts and output taken to market. Some sugar mills in East Pakistan, for instance, are working well below capacity because adequate supplies of sugarcane cannot be transported to them. Valuable mineral resources in Chitral, Waziristan and former Baluchistan areas are not being exploited for want of access; and coal mines near Quetta have to shut down when bad weather interrupts transport.

5. During the First Plan period production increased considerably in some sectors, generating heavy demand on transport. Statistics of traffic handled are available only in the case of railways, ports and the Pakistan International Airlines Corporation. An estimated increase of about 23 per cent has occurred on the North Western Railway in passenger-miles, and of about 33 per cent in freight ton-miles. On the Eastern Bengal Railway the estimated increase is about 20 per cent in passenger-miles and about 90 per cent in freight ton-miles. About 15 per cent more freight traffic could have moved if the railways had possessed the capacity to carry it. The cargo tonnage handled by the ports of Karachi, Chittagong, and Chalna increased by 25 per cent, 54 per cent, and 66 per cent respectively during 1955-60; the traffic handled by Pakistan International Airlines Corporation increased threefold. A considerable but unestimated increase occurred in road and river transport.

6. The demand for transport will rise faster during the Second Plan period with its large development programme. It may well rise by 40 per cent in West Pakistan (including the requirements of the Indus Basin replacement works) and by about 30 per cent in East Pakistan. It has not been found

possible to provide in the Plan the investment required to cover the increasing demands in full. A programme costing Rs. 2,875 million, which is 15 per cent of the total estimated development expenditure, is proposed for the public, semi-public and private sectors. Multiplying traffic requirements may make increased investment in transport inevitable. Means may then have to be found for meeting this contingency through suitable adjustments in the Plan.

7. An allocation of Rs. 1,987 million is made for the public sector programme in transport and communications, as shown in Table 1.

TABLE 1

Transport and communications development programme, public sector, 1960-61 *to* 1964-65

(*by executing authorities*)

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Railways	...	...	960	960
Chalna/Mangla anchorage ...	...	...	15	15
Shipping	...	...	2	2
Roads	250	250	45*	545
Civil aviation	...	...	100	100
Posts, telegraphs, and telephones	...	...	316	316
Broadcasting	...	...	40	40
Tourism	...	...	9	9
Total ...	250	250	1,487	1,987

*Includes roads to be constructed in Karachi and the special areas.

8. The total programme of public corporations (Karachi and Chittagong Ports, Inland Water Transport Authority, West Pakistan Road Transport Board, East Pakistan Road Transport Corporation, Karachi Road Transport Corporation and Pakistan International Airlines Corporation) is estimated at Rs. 535 million, as indicated in Table 2.

TABLE 2

Transport development programme, semi-public sector, 1960-61 *to* 1964-65

(*by location*)

(Million Rupees)

	East Pakistan	West Pakistan	Karachi	Nation-wide	Total
Karachi Port Trust	...	...	124	...	124
Chittagong Port Trust	15	...	...	...	15
Inland Water Transport Authority ...	80	...	...	...	80
Road Transport Board/Corporation	13	75	32	...	120
Pakistan International Airlines Corporation	...	...	...	196	196
Total ...	108	75	156	196	535

9. In the private sector an expenditure of Rs. 829 million is expected, as shown in Table 3.

TABLE 3

Transport development programme, private sector, 1960-61 *to* 1964-65

(*by location*)

(Million Rupees)

	East Pakistan	West Pakistan	Karachi	Nation-wide	Total
Shipping	...	...	...	103	103
Inland water transport	95	...	...	...	95
Road transport	170	300	50	...	520
Tourism	11	57	43	...	111
Total ...	276	357	93	103	829

10. Because the programme proposed at present is small in relation t rising transport needs, it will be necessary to explore and employ means o increasing transport capacity at relatively low cost. One such way would be t effect further improvement in working efficiency of the various transport services. Quick results could, for example, be obtained from a reduction of custom delays, more efficient stevedoring at the ports, provision of adequate storag to prevent railway wagons, ships and watercraft from being used for storage, reduction of cross-hauling of goods, encouragement of carriage of shor distance traffic by other modes of transport in order to reduce the strain on the railways, and modernization of railway operational and maintenanc practices. Another type of action is to reduce the volume of avoidabl traffic and to smooth out the peaks of demand that cause an unnecessar strain on the available transport capacity. Examples of these are construction at the ports and other focal points of grain elevators, and godown for fertilizers and other commodities ; provision of cold storage and th development of drying, freezing or canning plants to reduce the need fo fast movement of fish, fruits, vegetables and other perishables. A provision has been made in the Plan for these facilities. Other possible measures are the location of industries near raw material producing areas, so a to minimize transport requirements, and the development of farming belt around large cities to produce food and supply it to consumers at low transport costs. These warrant further study.

11. The First Plan recommended the establishment of machinery fo coordination between various forms of transport in the country. Transpor Coordination Boards have been formed in both Provinces. The terms o reference of these boards include, besides coordination in the operations o the different transport agencies, coordination of investment decisions for th development of transport facilities in the country.

Railways

12. The railways, before and since Independence, have passed through a period of severe strain and inspite of considerable expenditure on rehabilitation, there are still very heavy arrears of replacements and repairs to be undertaken. At the commencement of the First Plan period, the rolling stock was in an appalling condition and the renewals of track had fallen so badly in arrears as to necessitate imposition of extraordinary speed restrictions, thereby considerably hampering the movement of traffic. The First Plan provided for the renewal of track for most of the main lines and some of the important branch lines, purchase of 98 diesel electric locomotives, 444 passenger coaches, 7,253 wagons, and rehabilitation of other equipment, at an estimated cost of Rs. 683 million. The composition was as shown in Table 4.

TABLE 4

Projected First Plan expenditure on railways

(Million Rupees)

Track	248
Rolling stock	312
Plant and machinery	21
Structural and engineering works	61
Bridges	17
Expansion of North Western Railway workshops	5
Conversion of Jacobabad-Kashmor section from narrow gauge to broad gauge, and small schemes	19
Total ...	683

13. In arranging replacement of rolling stock the normal lives of assets shown in the Railway Code were revised in accordance with the recommendation of the First Plan, and the assumed working lives of rolling stock were increased from 35 to 45 years for steam locomotives, from 40 to 45 years for wagons and from 30 to 35 years for passenger coaches. Diesel locomotives were introduced, but because of some shortfall in renewing track and bridges these could not be used to their full working capacity.

14. The total development expenditure on the railways during the First Plan period is estimated at Rs. 796 million, against the provision of Rs. 683 million. The excess in the expenditure is due to the procurement of equipment for Afghan transit traffic, increases in the cost of material and equipment, and the inclusion of the Karachi circular railway in the programme.

Objectives in the Second Plan

15. The main objectives of the Second Plan are continuing replacement of rolling stock, rehabilitation of other equipment, and improvement of line capacity by removing traffic bottlenecks and modernization of signalling. In providing for replacements and additions, priority has been given to goods stock. The result of the departmental traffic surveys which the railways are now conducting will determine how far this programme will need to be increased.

16. There has been a gradual increase on both the railways in passenger and freight traffic since 1954-55; tentative estimates of further increases during the Plan period have been made. On the North Western Railway, passenger-miles are estimated to have increased from 4,366 million to 5,350 million during 1955-60, an average of 4·5 per cent per annum. Similarly ton-miles are estimated to have increased during 1955-60 from 2,826 million to 3,760 million, an average of 6·5 per cent per annum. During the Plan period the rising trend in passenger traffic is likely to persist, though perhaps on a slightly lower scale. It is estimated that the passenger-miles will increase to 6,400 million by 1965, a 20 per cent increase over 1960. The large expansion planned in agriculture and industry and developments such as Indus Basin replacement works are bound to have an impact on freight traffic on the North Western Railway. An increase of over 40 per cent in freight ton-miles above 1960 is estimated, giving a figure of 5,260 million ton-miles by 1965.

17. The volume of traffic on the Eastern Bengal Railway has also shown considerable increase in recent years. While passenger-miles are estimated to have increased from 1,362 million to 1,630 million during 1955-60 *i.e.*, 4 per cent per annum, the freight ton-miles are estimated to have increased from 472 million to 900 million, or 18 per cent per annum. There was no increase in passenger traffic on the broad gauge section, the entire increase being on the metre gauge section. On the other hand freight traffic on the broad gauge section increased by 116 per cent, while on the metre gauge the increase was about 60 per cent. The volume of freight traffic on the broad gauge section has been largely influenced by the traffic interchanged with the Indian Railways; this trend may not continue in the Plan period. The increase in passenger traffic is estimated to continue at the rate of 4 per cent per annum and may, therefore, reach 1,960 million passenger-miles by 1965. Freight traffic, however, is not expected to increase more than 30 per cent above 1960 during the Plan period, rising to 1,170 ton-miles by 1965.

18. The Railway Administration consider that to meet their present estimate of requirements for replacement and additions, development expenditure of Rs. 1,321 million is needed during the Plan period. In addition Rs. 273 million are required for the construction of new railway lines in order to open up new areas. In view of other claims on resources, however, the Plan proposes a tentative programme of Rs. 960 million, pending completion of the traffic surveys now in progress. As the current traffic surveys will take some time to complete, the programme has been split into two phases. The first phase will take care of the immediate minimum requirements of rolling stock and urgently needed works at a cost of Rs. 400 million during the first two years of the Plan period. The balance of Rs. 560 million is tentatively earmarked for the second phase. Traffic requirements likely to be generated by the Indus Basin replacement works are not fully known at present, and have not been taken into account. Certain vital railway extensions, such as the Kashmor-Kot Adu section will require priority consideration. As soon as the traffic survey now in progress is complete and the needs have been fully assessed, it may become necessary to revise the railway programme. The revision may require extraordinary readjustments in the Plan.

19. The following Plan priorities are proposed :

(*i*) Works designed to improve movement of traffic, line capacity and terminal facilities.

(*ii*) Rehabilitation of rolling stock and track.

(*iii*) Plant and machinery, bridges, structural and engineering works and other schemes.

Works designed to improve movement of traffic

20. These works include improvement of signalling, increasing line capacity by opening new crossing stations and remodelling existing station yards, rehabilitation of dilapidated railway buildings, improvement in water supply and replacement and development of workshops and staff welfare works. The major works carried out during the First Plan period were :

(*i*) Remodelling of Kundian, Rohri, Sukkur, Multan, Daudkhel and Lalamusa yards on North Western Railway and Akhaura and Tejgaon yards on Eastern Bengal Railway.

(*ii*) Improvement in signalling on some of the main line sections, on both the railways.

(*iii*) Opening of new crossing stations and conversion of a number of halt stations into crossing stations to increase line capacity.

(*iv*) Remodelling of Karachi City and Landhi stations.

21. Despite such improvements, traffic has either already exceeded or is approaching line capacity on a number of important sections on both railways. The movement even of priority traffic has been seriously delayed. The increased traffic that the railways have been able to carry is the result mainly of improvement in operating efficiency, and of retention in service of over-age rolling stock. The railways were, however, not able to meet all traffic demand particulary during the busy season. Efforts were made to spread the peak traffic over a longer period, and this helped somewhat in easing the situation. A provision of Rs. 96 million for works designed to remove bottlenecks including improved signalling, remodelling existing yards and opening new crossing stations has been made in the Plan.

Rehabilitation of rolling stock and track

22. *Rolling stock.*—In 1955 the railways had 1,223 steam and 92 diesel electric locomotives, 44,634 wagons, 2,700 passenger coaches and 1,500 other coaching vehicles. Of these, 257 steam locomotives, 8,495 wagons, 835 passenger coaches and 400 other coaching vehicles were over-age and required replacement. The First Plan provided for the procurement of 98 diesel electric locomotives, 7,253 wagons, 444 passenger coaches and 24 diesel rail cars with trailers, at a cost of Rs. 312 million. It is estimated that by the end of the First Plan period these targets will have been equalled or exceeded (Table 5), partly because these items include stock purchased for facilitating transit traffic to Afghanistan. Expenditure likewise will have been greatly above allocation, totalling Rs. 435 million.

TABLE 5

First Plan provision and actual acquisition of rolling stock

	Plan provision	Actual acquisition
Diesel electric locomotives	98	135
Wagons	7,253	7,253
Passenger coaches	444	604
Diesel rail cars with trailers	24	24

23. The estimated cost of replacements and additions of rolling stock is so large that with the limited resources it is impossible to meet them all promptly and in full. The railways will, therefore, continue to retain in service a large percentage of over-age stock. Even with the additions proposed in the Plan, the percentage of over-age stock at the end of the Plan period will be higher than at the beginning. A provision of Rs. 495 million is made in the Plan for purchase of new rolling stock as shown in Table 6. In addition, 15 boilers, 11 rail cars and 17 trailers are to be imported for the Eastern Bengal Railway.

TABLE 6

New railway rolling stock to be acquired, 1960-61 *to* 1964-65

		North Western Railway		Eastern Bengal Railway		Total
		Replacement	Net additions	Replacement	Net additions	
Diesel-electric locomotives	B.G.	97	...	...	...	97
	M.G.	...	...	30	...	30
Steam locomotives ...	B.G.	...	...	20	...	20
	M.G.	15	...	...	...	15
Passenger coaches ...	B.G.	180	152	50	...	382
	M.G.	24	9	165	...	198
Other coaching vehicles ...	B.G.	112	34	13	...	159
...	M.G.	16	...	15	19	50
Wagons	B.G.	2400	1644	600	...	4644
	M.G.	242	...	2472	...	2714
	N.G.	50	...	...	...	50

B.G.=broad-gauge : M.G.=metre-gauge : N.G.=narrow-gauge.

24. *Track.*—Because improved track would make for a fuller and more economical use of the rolling stock, its rehabilitation was given first priority in the First Plan. Normal renewal of track was not carried out due to scarcity of materials during the war and the inability to over-take the accumulated arrears in the post-war period because of difficulties in procuring rails and sleepers from abroad in the early years of Independence. Only 955 miles of rails and 1,414 miles of sleeper renewals could be accomplished by 1960 at a cost of Rs. 211 million, against the planned targets of 1,463 miles of rails and 2,430 miles of sleeper renewals at a cost of Rs. 248 million.

25. The track on both the railways is mostly laid on wooden sleepers. Before the war wooden sleepers were available from indigenous sources, but during the war the supply was diverted to military uses. After Independence the indigenous supply of timber for sleepers further deteriorated. The railways, however, were able to develop capacity for the manufacture of cast iron and concrete sleepers and other track materials, and can now manufacture about 60,000 cast iron sleepers and 15,000 concrete sleepers per annum. It is planned to increase the capacity to manufacture concrete sleepers to 50,000 in the Second Plan period. The effect of this development will be that a large proportion of demand for sleepers and practically all requirements of track fittings, *e.g.*, points and crossings, will be met from within the country.

26. At the beginning of the Plan period, the railways will have arrears of 1,450 miles of rail renewals and 2,500 miles of sleeper renewals. Provision is made in the Plan for clearing these arrears. The total estimated cost is Rs. 204·5 million. It has not been possible to make provision for meeting renewals falling due in the Plan period, estimated at 850 miles of rail and 1,800 miles of sleepers renewals.

Other development

27. *Plant and machinery.*—The rehabilitation and replacement of machinery and equipment in workshops and power houses of the railways is still in arrears despite the fact that Rs. 25 million was spent on development during 1955-60, against the First Plan allocation of Rs. 21 million. A high percentage of over-age rolling stock and other assets due for replacement have to be kept in service. To make this possible, heavy repairs amounting in some cases to complete reconstruction have to be undertaken in these workshops. The policy has been to economize in the replacement of the machinery as far as practicable and to continue using the existing plant and equipment, even at high maintenance cost. Certain items of equipment, however, are becoming unsuitable for further service and are beyond repair. After a careful survey of the condition of machinery and equipment, the replacement of these items has been included in the Plan with a provision of Rs. 24·8 million.

28. *Structural and engineering works.*—The Moghalpura workshops of the North Western Railway were expanded during the First Plan period. At present these workshops have a capacity to manufacture 1,000 broad-gauge wagons per annum. In addition, arrangements were made to assemble and finish 100 broad-gauge passenger coaches, and it is proposed gradually to develop capacity for the complete manufacture of 100 coaches per annum in these workshops. This should meet the normal annual replacement requirements of the North Western Railway. The work of rehabilitation of the Steel and General Mills at Moghalpura and the construction of a new spring manufacturing shop will have been completed in the First Plan period.

29. On the Eastern Bengal Railway arrangements were made in Pahartali workshops to manufacture 250 wagons per annum to meet normal annual replacement requirements. Capacity is also being developed to assemble 70 metre-gauge passenger coaches per annum.

30. A provision of Rs. 37·8 million is made in the Second Plan for structural and engineering works on both the railways, including remodelling of existing railway workshops. A large number of masonry and other structures, such as residential buildings, bridges, and sheds constructed during the close of the last century are showing signs of failure. Similarly electric wiring in the buildings has deteriorated, and water pipe lines have become encrusted and choked. These need replacement. To meet increasing maintenance requirements, the bridge workshop at Jhelum will be remodelled ; the signal workshop at Lahore, the locomotive, carriage and electrical shops at Moghalpura and the carriage and wagons shops at Hyderabad will be expanded. A fire brick factory at Malakwal and an apprentice training centre and a central laboratory at Moghalpura are also to be established. A complete new diesel electric locomotive workshop will be set up at Rawalpindi at a cost of Rs. 12·1 million. The existing facilities in diesel locomotive shops at Karachi are sufficient for maintenance and repairs of a maximum of 100 locomotives in service, but reconditioning of undergear and engines is also being undertaken at the shops, resulting in heavy congestion. With the increase in the number of locomotives in service to 176 by the end of the First Plan period and the proposed purchase of 97 diesel electric locomotives in the Second Plan period, the establishment of a new diesel backshop has become essential. This shop is programmed to be established in different phases. During the first phase, to be completed within the Plan period, the shop will cater for heavy repairs of 200 diesel locomotives. In the subsequent phases, the aim will be to create repair facilities for a maximum of 500 diesel locomotives.

31. The provision for structural and engineering works also includes Rs. 2·3 million for the creation of a new railway division at Sukkur. The divisional boundaries drawn at the time of Independence have in some cases, made it difficult to exercise effective supervision over widely distant points. Karachi and Multan divisions have become unwieldy not only because of the distant areas they have to control, but also because of the heavy increase in traffic which has put an additional strain on the divisional organisations. The creation of a separate division at Sukkur should make for better supervision and increased efficiency.

32. Some of the new important works on the Eastern Bengal Railway for which provision is made in the Plan are the remodelling of railway yards at Chittagong, Kalaura, Chashara and Narayanganj and the conversion of a number of ' D ' class stations into ' B ' class.

33. *Bridges.*—Provision was made in the First Plan for strengthening a number of bridges, providing new openings for floods and for the construction of a new bridge in replacement of the Lansdowne Bridge on the North Western Railway, and for the Hardinge Bridge training works on the Eastern Bengal Railway. Most of these works progressed satisfactorily, except the work on Lansdowne Bridge, which was delayed owing to a change in the original design.

34. The bridge programme in the Second Plan is estimated to cost Rs. 64·1 million and provides for :

(*i*) the replacement of certain wrought iron girder bridges which are much below the standard for present day loads and are under drastic speed restrictions. These restrictions are seriously affecting the capacity of certain main and important branch line sections;

(*ii*) the reconstruction of the Lansdowne Bridge over the Rohri Channel of the Indus which is already in progress. It is proposed also to renew the bridge over the Sukkur Channel, which is under heavy speed restrictions due to weak girders ;

(*iii*) the continuance of protection works of the Hardinge Bridge on the Eastern Bengal Railway ; and

(*iv*) the construction of new bridges, costing Rs. 18·9 million, for providing additional waterways on those sections of the railways which are regularly breached by floods, causing serious and prolonged dislocation of traffic.

35. *Dacca realignment.*—The Dacca realignment scheme was taken in hand during 1959-60. Since Independence the importance of Dacca railway station has increased considerably and the expansion of its facilities has become necessary. In coordination with the Greater Dacca master plan, it has been decided to shift the Dacca railway station from its present site where it has become a source of much congestion and traffic delays. The estimated cost of the scheme is Rs. 45·4 million, of which Rs. 18·4 million will be borne by the railway and the balance by the Provincial Government. An expenditure of about Rs. 1·4 million was incurred by the railways in the First Plan period ; Rs. 17·0 million are provided for this work in the Second Plan. The balance of Rs. 27 million will be financed by the Provincial Government for which provision has been made in the housing and settlements programme.

36. *Karachi Circular Railway.*—The terminal facilities at Karachi City Station are inadequate to handle even the present goods traffic, causing a serious set-back to trade. The goods and parcels sheds were not designed to handle the present volume of traffic, and there is no room for further expansion at the present site. It was, therefore, considered necessary to construct another terminus at Khadda near West Wharf, connecting it by a 16 mile long suburban railway line leaving the main line near Drigh Road and passing through a number of suburbs of Karachi. When this line is eventually linked up with the West Wharf it will provide an alternative route for movement of traffic to and from Karachi Port. It will also provide regular, cheap and efficient transport for the residents of the suburbs and industrial areas of Karachi. Construction of the railway line is expected to be completed in 1962 at a total estimated cost of Rs. 23 million.

37. *Bholaganj-Chattak Ropeway.*—There are heavy arrears in the ballasting programme of the Eastern Bengal Railway due to acute shortage of ballast

and stones in East Pakistan. Large sections of the railway are under heavy speed restrictions on this account. It is therefore proposed to exploit shingle deposits in river beds near Bholaganj and transport them to Chattak by means of a ropeway for distribution to the railway. A provision of Rs. 3·3 million has been made in the Plan for this work.

38. *Traffic between the Provinces.*—The First Plan recommended that arrangements be made for direct booking of goods between East and West Pakistan. No progress in this direction has so far been made. Such a service is considered essential for the development of traffic between the two Provinces. It is important that any procedural and operational difficulties that stand in the way should be overcome through joint consultations between the two railways, shipping and other interested parties. With the recent augmentation of shipping space for coastal traffic between the two provinces, the problem of direct booking should prove to be less intractable than has been the case in the past.

39. *Management of railways.*—Administration of the railways through an autonomous public body was proposed in the First Plan. It was argued that in order to serve as an efficient transport system fully responsive to the needs of a rapidly developing country, the railways should be operated as a commercial undertaking free from departmental and political interference. In 1957 the Government appointed a Railway Expert Committee to examine the various systems of railway management and to recommend the form of administration best suited to the conditions of the Pakistan railways. This committee supported the First Plan proposal and suggested the creation of a central railway authority to administer the Pakistan railways. In 1959, the Government decided to place the management of the railways under a Railway Board which is not fully autonomous but which is invested with wide administrative and financial powers. The management of the railways should ultimately be entrusted to an autonomous body operating as a commercial undertaking with its budget separated from the general budget, enjoying freedom from external interference, and subject only to limited and carefully defined Government control.

40. *Railway statistics.*—The First Plan proposed that the agencies for the collection, compilation and publication of statistics which must form the basis for sound planning and evaluation should be properly organised. Such organizations now exist in the railways ; and a large volume of commercial, operational and financial statistics is compiled, though presentation is sometimes different on the two railways. Generally speaking, however, these statistics are not much used by those for whose benefit they are produced, mainly because some if not most of these are difficult to interpret. It is recommended that the whole range of statistics concerning Pakistan railways should be reviewed in order to ensure that only statistics of real value are produced, that both the railways prepare them on the same basis, and that they are capable of ready interpretation.

41. *Rates and commercial policy.*—The First Plan stated that as the railways were basically commercial undertakings, their rating structure should be kept under constant review, so that the level of charges could be adjusted from time to time in the light of incentives and dis-incentives needed for economic development. Such reviews of the rating structure should continue particularly with a view to promoting exports. At the same time there is need for improving and simplifying the rating structure both in respect of freight and coaching traffic. The Railway Board, it is understood, will conduct further investigations into this matter. The First Plan proposed also that the railways should have a well-organized research staff as a part of their commercial department, to make continuous studies of the economic developments taking place in the country. Owing to shortage of technical personnel and limitations of finance, no such unit has been organized. It should repay the railways to establish machinery, if necessary with the assistance of foreign experts, to keep the commercial policies constantly under review.

Technical personnel

42. A high degree of technical competence, both in planning and execution, has distinguished the Railway Administration. Nevertheless serious shortage of engineers and other supervisory technical staff persists in the railways. The position seems to be deteriorating due to growing demand for technically qualified men emanating from governmental agencies as well as private concerns. Urgent measures are called for to increase the supply of technical manpower to meet requirements.

Electrification of railways

43. Consideration is being given by the railways to the question of electrification of those lines where sufficient power is likely to be available and where traffic density justifies this course. Further action will depend on economic feasibility of electrification being fully established by expert investigation.

Programme allocations

44. Table 7 summarizes the provisions made in the Plan for the Railways.

TABLE 7

Railway development programme, 1960-61 *to* 1964-65

(Million Rupees)

	North Western Railway	Eastern Bengal Railway	Total
Works for improving line capacity	65·0	31·0	96·0
Rolling stock	323·3	171·9	495·2
Track	152·7	51·8	204·5
Plant and machinery	11·6	13·2	24·8
Structural and engineering works	25·0	12·8	37·8
Bridges	55·1	9·0	64·1
Karachi Circular Railway	17·3	...	17·3
Dacca realignment	...	17·0	17·0
Ropeway at Chattak	...	3·3	3·3
Total ...	650·0	310·0	960·0

45. Of the total development expenditure of Rs. 960 million, Rs. 650 million have been allocated for the North Western Railway and Rs. 310 million for the Eastern Bengal Railway. The seeming disparity is more apparent than real when account is taken of the fact that this expenditure amounts to Rs. 122,000 per route-mile on the North Western Railway and Rs. 180,000 per route mile on the Eastern Bengal Railway, the total route mileage being 5,334 on the North Western Railway and 1,713 on the Eastern Bengal Railway. It is proposed to split up the railway programme into two phases, the first covering the period from 1960-61 to 1961-62, with an allocation of Rs. 400 million as shown in Table 8.

TABLE 8

Outlay proposed in first phase of the railway programme, 1960-61 *to* 1961-62

(Million Rupees)

	North Western Railway	Eastern Bengal Railway	Total
Works for improving line capacity	33·8	9·0	42·8
Rolling stock	95·1	63·2	158·3
Track	48·0	32·4	80·4
Structural and engineering works	48·5	12·2	60·7
Bridges	23·0	5·0	28·0
Karachi Circular Railway	15·7	—	15·7
Dacca realignment	—	10·8	10·8
Ropeway at Chattak	—	3·3	3·3
Total ...	264·1	135·9	400·0

Ports

46. At Independence, Pakistan inherited two major ports, Karachi in West Pakistan and Chittagong in East Pakistan. These ports were immediately called upon to handle inter-provincial and international traffic far heavier than they had ever handled in the past; and it was soon apparent that handling capacity would have to be speedily and very greatly increased. The work of development of Chittagong Port was, therefore, promptly taken in hand. The construction of additional jetties with improved facilities as also the remodelling of the railway yard was begun in 1949. By 1955, the port was able to handle over two million tons of cargo annually as against

its original capacity of about half a million tons. At Karachi Port, thirteen of the seventeen berths on the East Wharf were over 60 years old. Their reconstruction was started in 1954, and provision was made for modern cranes, storage sheds, a remodelled railway yard and other facilities. In East Pakistan the area lying east of the Brahmaputra and the Ganges is served by Chittagong Port. The need for a second port for ocean going vessels to cater for traffic relating to the western area was met with the establishment of an anchorage at Chalna on the river Pusur in December 1950. The permanent location of the anchorage is to be decided after current investigations into the behaviour of the river are complete. The principal task in the First Plan was therefore to undertake the expansion of Chittagong Port, the reconstruction of the East Wharf at Karachi and the interim development of the Chalna/Mangla Anchorage. Table 9 shows the Plan allocations and the actual expenditure incurred. The excess expenditure on Karachi and Chittagong ports was due principally to increase in prices and provision of some essential works not included in the original schemes.

TABLE 9

Development expenditure on port construction, 1955-56 *to* 1959-60

(Million Rupees)

	Provision in the First Plan	Additional works subsequently approved	Total	Actual expenditure
Karachi Port	89·0	24·0	113·0	133·0
Chittagong Port	28·0	10·0	38·0	43·0
Chalna/Mangla Anchorage ...	12·5	...	12·5	7·0
Total ...	129·5	34·0	163·5	183·0

Karachi Port

47. Karachi is the only port for West Pakistan, and also handles transit trade to Afghanistan. The traffic moving through the port is shown in Table 10.

TABLE 10

Traffic through Karachi Port, 1949-50 to 1958-59

(Thousand tons)

Year	Inward	Outward	Total
1949-50	1,917	924	2,841
1950-51	2,302	1,172	3,474
1951-52	2,688	1,076	3,764
1952-53	3,017	897	3,914
1953-54	2,664	895	3,559
1954-55	2,157	915	3,072
1955-56	2,530	1,096	3,626
1956-57	3,271	1,017	4,288
1957-58	3,394	843	4,237
1958-59	2,641	967	3,608

Source : Central Statistical Office

48. The East Wharf at Karachi Port comprises 17 berths constructed during 1888-1909, not designed for carrying railway locomotives, and mostly equipped with 35 cwts. fixed-jib hydraulic cranes. The yard behind the wharf was primarily meant to deal with the export of goods, which were mainly rail borne ; road or transit facilities were practically non-existent. As stated earlier, when the replacement of these berths became a matter of urgency on account of increased traffic, it was decided first to reconstruct the 13 oldest berths. Under the reconstruction scheme a solid quay wall is now built to maintain an increased depth of 34 feet with quayside railway tracks where shunting will be done by locomotives. In addition, transit sheds, transit plinths, concrete roads, storage sheds and an entirely remodelled railway yard, improved lighting, overhead road bridges, sanitary arrangements, improved fresh water facilities, and adequate fire protection are being provided. The old 35 cwts. hydraulic cranes are being replaced by 3-ton electric portal luffing cranes.

49. In the Second Plan, the first aim will be to complete the schemes under way. The reconstruction of the thirteen berths is expected to be substantially completed during 1961 and will have cost in total Rs. 150 million. The remaining works in progress, such as road over-bridges and transit sheds, will be completed during 1962. In addition, the scheme includes the replacement and addition of tugs, barges, cranes and other craft necessary for efficient port working, at a total cost of Rs. 24 million. The completion of the East Wharf scheme will increase the port's handling capacity by about 30 per cent, which should prove adequate for some years to come. Besides

the completion of the works in progress, provision has been made for the reconstruction of the four berths not included in the First Plan, now in urgent need of reconstruction on account of rapid deterioration during recent years. Other items included in the Second Plan are replacement and extension of the old bulk oil pier, repairs to the Napier Mole Road Bridge, construction of staff quarters, and the provision of facilities for the supply of fresh water to visiting vessels. Provision has been made also for replacement of some of the old tugs, barges and dredgers, and for purchase of new craft necessary for the port's efficient working. The rehabilitation of the Manora break-water has also been recommended by the Karachi Port Trust, at a cost of Rs. 5 million. This structure was repaired at a cost of Rs. 1·7 million in 1952 ; detailed survey is necessary to determine whether the proposed rehabilitation is an immediate necessity or could be postponed. A provision of Rs. 1·0 million has been made in the Plan for survey work. The total cost of the programme is estimated at Rs. 124 million, to be financed from the Karachi Port Trust's own resources, and a loan to meet the foreign exchange costs.

Chittagong Port

50. Chittagong was originally a small port with four berths and capable of handling about half a million tons of cargo. Because it was the only port for East Pakistan, the work of constructing additional jetties with modern and improved facilities was begun immediately after Independence, and about Rs. 88 million were spent by 1955, increasing the port's capacity to approximately 2·5 million tons of cargo a year. There are now 17 berths, 9 of which have improved facilities and are equipped with modern cranes, three moorings and the necessary storage accommodation. Rs. 11 million will have been spent by the Chittagong Port Commissioners from their own resources during the First Plan period on replacement of old and purchase of additional craft, provision of a slipway and the installation of other facilities.

51. Table 11 shows the growth of traffic through Chittagong Port.

TABLE 11

Traffic through Chittagong Port, 1949-50 *to* 1958-59

(Thousand tons)

Year	Inward	Outward	Total
1949-50 ...	710	295	1,005
1950-51 ...	1,207	423	1,630
1951-52 ...	1,321	400	1,721
1952-53 ...	1,054	570	1,624
1953-54 ...	1,031	510	1,541
1954-55 ...	902	490	1,392
1955-56 ...	1,086	524	1,610
1956-57 ...	1,746	456	2,202
1957-58 ...	1,722	499	2,221
1958-59 ...	1,638	501	2,139

Source : Central Statistical Office

A considerable amount of export traffic has already been diverted to the Chalna/Mangla Anchorage, reducing the pressure on Chittagong Port. It is expected that its present capacity will be adequate for probable traffic during the Second Plan period.

52. The Karnafuli river on which Chittagong Port stands is practically untrained, and the main jetties suffer from lack of draught. The movement of vessels is further restricted by bars in the mouth of the river and inside the harbour. Studies to determine the measures required to train the river channel and to make the port accessible to vessels of all types and at all times were started before 1955. These studies are still in progress and are expected to be completed within the next three years. Works connected with the training of the river can start only after the results of the studies are available.

53. A total provision of Rs. 15·4 million has been made in the Second Plan: Rs. 4·7 million for completion of the on-going schemes and Rs. 10·7 million for studies for river training schemes, and for new works, river lighting, a twin screw suction dredger, a fast patrol launch, 3 pontoon barges, a twin screw tug, and quarters for employees. The entire expenditure will be financed from the Chittagong Port Commissioners' own resources with the help of a loan to meet the foreign exchange cost.

Chalna/Mangla Anchorage

54. As indicated earlier, to meet the need for a second port to provide a convenient outlet for traffic relating to the western part of East Pakistan, an anchorage was established at Chalna in December 1950 as an experimental measure. The anchorage proved so eminently successful that it was made permanent in 1952. Its final location is not yet decided because available data about the behaviour of the river are still incomplete. It is, however, believed that Mangla, about 30 miles down-stream, at which the anchorage has been located since 1954, will prove the better site. The headquarters of the anchorage are situated at Khulna. The hinterland is served mainly by inland water transport vessels which load and unload cargo into and from ocean-going vessels at the anchorage. Rail transport is available at Khulna where some pontoon landing stages and storage space with road and rail access exist.

55. The First Plan did not make provision for port facilities at the anchorage because the question of the permanent location for the port was not yet settled. Some expansion such as provision of storage accommodation at Mangla and improvement of facilities at Khulna was, however, considered necessary, and an allocation of Rs. 12·5 million was made. The construction of residential accommodation for signalling staff and the office building at Khulna, procurement of necessary river craft, and the installation of moorings have been completed. Arrangement for the provision of navigational aids and other facilities are in progress. Development expenditure during the First Plan is expected to be about Rs. 7 million. Since its

inception the anchorage has been handling an increasing tonnage as shown in Table 12.

TABLE 12

Traffic through Chalna/Mangla Anchorage, 1950-51 *to* 1958-59

(Thousand tons)

Year	Inward	Outward	Total
1950-51	8	69	77
1951-52	192	210	402
1952-53	94	335	429
1953-54	123	313	436
1954-55	88	391	479
1955-56	78	507	585
1956-57	205	501	706
1957-58	306	505	811
1958-59	218	577	795

Source : Central Statistical Office

56. Until the hydraulic investigation of the river Pusur to determine the permanent site for the port is complete, it would be inadvisable to undertake major improvement schemes at the anchorage, but provision has been made in the Second Plan for meeting immediate requirements. An allocation of Rs. 15 million has been made for the construction of a jetty and of residential and office accommodation at Khulna, arrangements for supply of fresh water at Mangla, provision of transit sheds and purchase of pilot and survey vessels, despatch launches, tugs, barges, floating workshop and other navigational facilities at Mangla.

Policy considerations

57. Karachi Port is administered by a Board of Trustees appointed under the Karachi Port Trust Act of 1886. The Chairman of the Port is appointed by the Government ; under the present Act, his powers are considerably restricted, and matters involving day to day administration have to be referred to the Board of Trustees. The Act should be revised to ensure that the Board is concerned only with matters of broad policy, and not with details of administration.

58. At Chittagong, imports are much larger than exports, resulting in the haulage of empty railway wagons to Chittagong. On the other hand, Chalna is becoming more and more an export port, and the river boats come loaded to Chalna and go back empty. Detailed studies should be undertaken to determine whether this wastage of transport capacity can be avoided.

59. One of the main reasons for congestion at the ports is the cumbersome methods now used for clearing goods through customs and port premises. A great many formalities have to be performed at various stages; these time-wasting procedures should be simplified and speeded up.

Plan allocations

60. The provisions made for the development of ports in the Plan are shown in Table 13.

TABLE 13

Port development programme, 1960-61 *to* 1964-65

(Million Rupees)

	Government-financed	Port's own resources and foreign loans	Total
Karachi Port Trust	...	124·0	124·0
Chittagong Port Trust	...	15·0	15·0
Chalna/Mangla Anchorage	15·0	...	15·0
Total ...	15·0	139·0	154·0

Shipping

61. The country's merchant fleet rose to 180,000 dead-weight tons in 1955, but the ships acquired were assorted craft, mostly over 30 years old. There were only six ships totalling about 50,000 tons which could be regarded as modern. This largely uneconomic fleet, long over due for scrapping, was costly in foreign exchange expenditure on repairs, fuel, and insurance of ships and cargo. The object of the First Plan was to develop a dependable modern merchant fleet to carry the coastal trade as well as to share in the country's foreign trade. Proposals were made for the augmentation and renovation of the coastal cargo fleet. It was also proposed that a national shipping corporation should be formed to participate in both coastal and international traffic. A Government contribution of Rs. 60 million was included for the purchase of six or seven modern ships and for working capital. For developing passenger service between Karachi and Chittagong, it was proposed that a new passenger ship be acquired for this service. Another ship for Haj traffic was also needed.

62. Because Pakistan shipping companies showed readiness to invest in developing the industry, the proposal to form a national shipping corporation was not proceeded with. These companies have since purchased 10

comparatively new cargo ships. There are now 26 ships in the fleet, 16 of which are less than 20 years of age. These handle some 700,000 tons of cargo a year between the two Provinces.

63. A Merchant Navy Academy at Juldia Point near Chittagong to train personnel for the merchant fleet at a cost of Rs. 3·4 million, proposed in the First Plan will open in the near future. For the completion of this work, Rs. 1·7 million have been provided in the Second Plan.

Second Plan programme

64. *Coastal shipping.*—There is now enough cargo tonnage available to handle the coastal shipping. The ten old ships, however, require replacement. During the Plan period, it is proposed to build three ships, at a total estimated cost of Rs. 27 million. A private shipping company has placed an order for a new passenger ship to replace the "Aronda", at a cost of Rs. 15 million.

65. *Haj traffic.*—There is at present no pilgrim ship in the merchant fleet, and foreign ships have to be chartered for Haj traffic. To save the recurrent foreign exchange expenditure, it is necessary to buy ships for this traffic. The purchase of second-hand ships for pilgrim traffic has not been possible owing to the rejection after inspection of many vessels offered for sale. The only satisfactory answer is to build new ships to suit this special trade. A fleet cannot be built at once. Therefore, it is proposed to start with one new pilgrim ship, estimated to cost Rs. 15 million.

66. *International traffic.*—Until recently there was no Pakistan ship on the international trade routes. The entire foreign trade was carried by foreign shipping companies. The freight earnings remitted by foreign companies amount to some Rs. 80 million a year on the trade between Pakistan and western Europe only. There is a good prospect of saving foreign exchange by participating in the carriage of imports and exports. Six ships for general cargo would be the minimum needed for a monthly sailing to Europe ; these have been provided in the Plan at an estimated cost of Rs. 40 million out of which Rs. 20 million will be paid during the Plan period. This provision is made subject to the results of experimental runs now in progress on the European route by Pakistan shipping, admitted to the Conference Line in 1959.

67. At present almost the entire oil requirements of the country are brought in by foreign tankers. The total freight bill of these tankers amounts to Rs. 27 million per annum. The Maritime Commission has recommended the acquisition of tankers for this trade, and the Plan provides for the purchase of two tankers at an estimated cost of Rs. 6 million. It is estimated that with these two tankers in service there will be an annual saving of approximately Rs. 3 million in foreign exchange

68. *Plan allocation.*—The entire expenditure for the purchase of ships will be in foreign exchange and all in the private sector (Table 14).

TABLE 14

Shipping development programme, 1960-61 *to* 1964-65

(Million Rupees)

	Number of ships	Expenditure		
		Private sector	Public sector	Total
Cargo ships for coastal traffic	3	27	...	27
Passenger ship for Karachi-Chittagong route	1	15	...	15
Passenger ship for Haj traffic	1	15	...	15
Cargo ships for international traffic	6	40*	...	40
Oil tankers	2	6	...	6
Merchant Navy Academy at Chittagong	...	...	2	2
Total	13	103	2	105

*Of which Rs. 20 million will be paid by 1965 and the balance financed by foreign credit.

Inland Water transport

69. Inland water navigation is the backbone of the transport system of East Pakistan, a fact dictated by the geography of the Province. It is also the most economical method of transport of goods, particularly bulk cargo, if suitable facilities are available at inland ports. Water transport is in the hands of private enterprise. Mechanically propelled vessels comprise some 800 self-propelled vessels and 650 dumb craft. Most goods, however, are moved within the Province by country boats : over 110,000 cargo boats and about 200,000 passenger boats of all sizes from large jute boats to small dinghis capable of plying into the furthest reaches of the small rivers and khals. There are some 2,800 miles of navigable waterways, increasing to about 4,000 miles during the monsoon; in addition the riverine districts along the coast, except around Chittagong, depend almost wholly on river transport. The bulk of traffic, which previously moved to Calcutta, was diverted first to Chittagong and later to Chalna, which is entirely dependent on inland water transport for taking its imports on into the interior, and for bringing up the goods for export.

70. The efficient operation of inland water transport is dependent on the provision of a number of services such as navigational aids, maintenance of water channels through dredging and river training, pilotage and salvage facilities, survey of vessels and country craft, maintenance of inland ports, and the provision of terminal facilities for passengers, and for the handling and storage of cargo. Until recently these services were being performed by

diverse independent agencies. The lack of coordination between the various agencies and the inadequacies of some of the essential services made inland water transport less efficient and more costly. The First Plan therefore recommended the creation of an inland waterways board which was to be responsible for organizing essential activities as well as registration of vessels and levy of port dues and other charges. In October 1958 an Inland Water Transport Authority was established in East Pakistan with functions analogous to those recommended in the Plan.

71. The First Plan proposed a public sector allocation of Rs. 83 million for the development of inland water transport including dredging of navigational channels, provision of buoyage, lighting and other navigational aids, the development of inland ports, a pilot project for new craft and towage methods and a scheme for mechanizing and modernizing country craft. Public investment of Rs. 30 million was proposed to assist the private operators to rehabilitate their fleet. During the first four years of the Plan period, however, no public development expenditure was incurred beyond about Rs. 4 million on dredging. The Inland Water Transport Authority, after its establishment, initiated schemes for the improvement of navigational aids, development of inland ports, and the provision of other facilities. In total, about Rs. 15 million will have been spent, against the provision of Rs. 83 million in the Plan. No progress was made on the pilot project for new craft and towage methods. The pilot project for mechanizing and modernizing craft was not implemented, but is now to be undertaken by the private sector.

72. The transport development programme of East Pakistan will require consideration after the results of the comprehensive transport survey of the Province become available. Meanwhile, the Second Plan contemplates expansion of waterways to maximize navigable mileage throughout the year; development of major and secondary river ports; research in the various fields of navigation; modernization and better maintenance of the inland water-transport fleet; and development of rural watertransport. No comprehensive statistical data are available for inland water transport in terms of ton-miles or passenger-miles. It is expected, however, that during the Plan period passenger demand will increase by about 20 per cent, and goods by 30 per cent. Of the registered vessels, more than half the powered craft and nearly three quarters of the dumb craft are more than 35 years old, and many urgently need replacement.

73. In an attempt to meet these requirements, the Inland Water Transport Authority's programme will be focussed mainly on development of major and secondary inland ports, on dredging navigational channels, and providing facilities like landing stages, research centres, and aids to navigation. In the private sector, the programme will include modernization and replacement of the existing fleet, development of shipyards, and a pilot yard for the construction of tugs and other small craft. The programme is summarized in Table 15.

TABLE 15

Inland water transport development programme, 1960-61 *to* 1964-65

(Million Rupees)

Semi-public sector	
Development of inland ports	25·0
Development of 250/400 concrete floating landing stages with facilities for passengers	4·0
Technical training scheme for inland water transport in various sectors ...	2·5
Workshop facilities for conservancy equipment	0·6
Buildings at ten river ports	1·4
Research centre for development in the fields of craft design and motive power, port and harbour installations and aids to navigation	2·0
Extension of facilities for river conservancy and aids to navigation, and acquisition of river conservancy craft and ancillary equipment	12·0
Development of telecommunications for IWT	1·0
Dredging of navigational channels	29·0
Completion of works in progress	2·5
Total ...	80·0
Private sector	
Raw materials, spare parts and diesel marine engine replacements for overhaul, survey and repairs of IWT fleet	20·0
Modernization of existing IWT craft, fleet replacements and acquisition of new craft	45·0
Provision of fast passenger vessels for inter-island traffic to Chittagong and fast passenger launches for general service	12·0
Provision of modern slipways and docks for construction and repair of small craft	5·0
Development of shipyards and ship repair capacity	8·0
Development of rural water transport, establishment of a pilot yard and construction of pocket tugs	5·0
Total ...	95·0

Roads

74. The First Plan allocation for road development, including research facilities and procurement of new road machinery, but excluding expenditure on roads constructed in municipal areas or under Village AID programmes was Rs. 360 million. The Plan provided for the construction of 1,025 miles of new roads and the improvement of 1,700 miles of old roads at a cost of Rs. 195 million in West Pakistan; 800 miles of new roads were to be constructed and 350 miles of old roads improved at a cost of Rs. 165 million in East Pakistan.

75. By the end of the Plan period, a total of 3,215 miles of roads will have been constructed or improved, at a cost of Rs. 406 million. In West Pakistan 1,150 miles of new roads will have been built, and 1,400 miles of old roads improved at a cost of about Rs. 200 million. Work on constructing about 850 miles of new roads and improving about 250 miles of old roads is in progress. In East Pakistan, about 665 miles of new roads will have been completed, with about 1,560 miles of roads in progress at a cost of about Rs. 206 million. A weakness in performance in East Pakistan, which has contributed to the failure to reach the target of completed new mileage, has been that the construction of roads was started all over the Province with a view to spreading the benefit as widely as possible; there was no concentration on completion of selected roads of high priority. As a result a number of unconnected road stretches of little current value have been built without bridges and culverts.

76. Rs. 1·5 million was allocated for expanding road research in West Pakistan with a view particularly to evolving new specifications for road construction through use of locally available material. This has not been done. In East Pakistan an expenditure of over Rs. 12 million was incurred on acquisition of road building machinery, training of engineers, certain experimental roads, and building a road research and testing laboratory and a workshop.

Objectives in the Second Plan

77. Rationalization of road development in the Second Plan period is essential. All schemes already in progress should be carefully reviewed, in the light both of the costs already incurred and prospective cost of completion. Some of the low priority schemes could probably be slowed down, others reduced in scope and still others stopped altogether. Among economically desirable schemes already in progress, top priority should normally be given to those closest to completion. High priority should be given to the completion of roads by constructing necessary bridges and culverts, and by providing missing links or improving inadequate stretches. Because of increased costs, increased allocation of funds for maintenance of old and new roads should be made.

78. The country is lacking in research in road construction, and is following specifications which are outdated and costly. To make best use of the limited resources, research and investigations should be carried out on various types of local soils and materials, to discover better and cheaper methods of road construction in the different topographical regions of the country. The task of revision of existing road specifications should be urgently entrusted to an expert body of road engineers, in collaboration with the road and building research laboratories at Lahore and Dacca. With rapid improvements in technique of road construction and maintenance, highway engineering calls for specialization in the use of building material and machinery.

79. There has been a general tendency in the past to build high-type surfaces, or none at all. To economize resources available for roads it is preferable to use low-type, all-weather surfaces, especially soil-stabilized or gravel types. The Plan therefore proposes that experimental stretches of low-type all-weather surfaces should be developed as a basis for building an efficient system of feeder roads. Other important roads should be developed on the basis of stage construction. In the first stage a low-cost surface should be used with culverts and bridges, unless traffic density warrants the immediate construction of a high-type surface. The surface can be improved to higher specifications at later stages as necessary.

80. Road construction in rural areas lends itself particularly to self-help by the people, and it is of the highest importance that maximum possible use of voluntary local labour be made in building village roads. The Public Works Departments should provide the necessary technical assistance in construction by local communities on self-help basis in close cooperation with the Village AID organization. Such assistance should cover those items of work which cannot be accomplished by local effort. Collaboration between the technically qualified personnel and the Village AID Organization with its roots in Basic Democracies should prove an instrument of vigorous development of roads, particularly in rural areas.

Development programme

81. In the Plan, a provision of Rs. 545 million is made for a road programme of Rs. 250 million each in East and West Pakistan, and Rs. 45 million in Karachi and the special areas. The programme is detailed below.

82. *East Pakistan.*—It will be necessary to complete 740 miles of the road programme on which work is in progress in East Pakistan. Efforts will need to be concentrated on the most important roads and the current programme carefully reviewed. A sum of Rs. 202 million has been allocated for this purpose. The transport surveys now under way will help to establish priorities for this expenditure. A number of feeder roads are to be built to connect several sugar mills and other factories with the nearest railways, to provide access to the interior, and to improve access to the new district headquarters to be established. Estimates made by the provincial authorities place the requirements at another 170 miles of new roads costing Rs. 46 million. Pending the results of the transport study now being carried out in the Province, an allocation of Rs. 40 million is made for the completion of 130 miles of new roads during the Plan period. Rs. 8 million is provided for acquisition of tools and plant, workshop and other equipment and powered vessels for ferries.

83. *West Pakistan.*—About 850 miles of new roads and improvement work on 250 miles of existing roads, now in an advanced stage, will be completed at a cost of Rs. 92 million. The bridge over the Indus near Thatta and certain other smaller bridges will be finished at a cost of Rs. 21 million. A provision of Rs. 10 million is made in the Plan for the construction of about 450 miles

of road along the Makran coast to be completed after 1965, at a total estimated cost of Rs. 40 million, and of Rs. 8 million for building 110 miles of the Kalat-Khuzdar section of the Karachi-Kalat-Quetta road. The barrage areas will be opened up by building 1,225 miles of new roads to be completed after 1965 at a total estimated cost of Rs. 73 million; a provision of Rs. 40 million is made in the Plan to meet part of the cost. Roads will be built to link district headquarters with divisional headquarters in Bahawalpur, Quetta, and Kalat Divisions. Other construction will include the Hindu Bagh-Loralai-D.G. Khan Road and certain village and other roads at a cost of Rs. 22 million; and new bridges over the Sutlej near Bahawalpur, the Ravi near Lahore, the Jhelum near Jhelum and the Deg Nalla between Lahore and Gujranwala at a total estimated cost of Rs. 26 million, of which Rs. 15 million will be spent during the Plan period. Provision is also made for improving existing roads at a total cost of Rs. 40 million. By the end of the Plan period some 2,075 miles of new roads will have been added to the road system of West Pakistan and about 1,450 miles of existing roads improved.

84. *Karachi and the special areas.*—The road from Karachi to the civil airport, and certain other roads in Karachi area are to be improved at a cost of Rs. 7 million. A new bridge over the Malir river, costing Rs. 5 million will be taken in hand on a priority basis. In the far north of West Pakistan and other backward areas, and for the development of coal mines in Quetta Division, 870 miles of new roads are to be constructed at a total cost of Rs. 42 million, towards which a provision of Rs. 33 million is made in the Plan.

Village and forest roads

85. Roads to be built mainly with local labour and by local communities for connecting villages together and for linking them to the main road system are included in the Village AID programme. During 1955-59, 130 miles of *pucca* roads were constructed (43 miles in East Pakistan and 87 miles in West Pakistan) and 150 miles of *pucca* roads were improved (35 miles in East Pakistan and 115 miles in West Pakistan). In addition, 3,000 miles of *kutcha* roads were constructed (1,000 miles in East Pakistan and 2,000 miles in West Pakistan) and 4,000 miles of *kutcha* roads were improved (2,300 miles in East Pakistan and 1,700 miles in West Pakistan) during the same period. In the Second Plan provision is made for Rs. 25 million for the construction and improvement of 1,000 miles of village roads. In addition about 1,150 miles of new roads will be constructed to exploit forest resources in areas not easily accessible at present. Provision for these schemes is made in the agriculture sector.

Road transport

86. Road transport is particularly suited to the conditions and requirements of Pakistan, a predominently agricultural country with small production units scattered over wide areas. The motor vehicle is more adaptable than the railways to varying degrees of traffic intensity, and permits a greater

degree of speed and efficiency in haulage over short distances, particularly in the case of perishable goods. Moreover, the railways need auxiliary transport as feeders, and here road transport must play an important part. The comparative economies of the various modes of transport, especially road and rail transport, requires study by an expert committee. Cost and freight data readily available do not permit of a scientific analysis being undertaken; more detailed information will be required to study the merits of various means of transport and to suggest measures for their coordination.

87. Road transport in the country is almost entirely financed by private enterprise, except for about a third of the passenger bus services operating in West Pakistan and Karachi under Government-sponsored agencies. Because private enterprise has been willing to invest in road transport, the policy is that the industry should be left to private financing to the maximum extent; that government-sponsored passenger bus services should operate as a model and in competition with private operators; and that such services should not be extended to new routes on a monopoly basis, though in the larger interests they may operate in less developed areas and on new routes not likely to attract private enterprise.

88. A provision of Rs. 25 million was made in the First Plan for the improvement of West Pakistan Road Transport Board services, and the Board was to invest an equal amount from its own resources. A further allocation of Rs. 22 million was made in the public sector towards the end of the Plan period for introducing a fleet of 500 buses in Karachi through an autonomous Karachi Road Transport Corporation. The public sector allocation to road transport in the Plan was restricted to Rs. 47 million, in the hope that substantial funds would be invested by private enterprise in both passenger and goods transport services. While the modest programme in the public sector has been accomplished, private enterprise has been unable to make as much headway as was expected, owing largely to restrictions on import of vehicles. There has been a considerable rise in the number of private motor cars in the country, but the increase in commercial vehicles has been disappointing. The number of such vehicles rose from about 13,000 trucks and 7,000 buses in 1955 to only 16,000 trucks and 9,000 buses in 1960. The major factors inhibiting the growth of road transport in the private sector were severely restricted imports of vehicles and spare parts, absence of viable and efficient operational units, and some apprehension of nationalization of road transport.

Policy recommendations

89. Expansion of road transport will need active stimulation to meet the heavy transport requirements of the development programme in the next five years. In particular it is necessary to encourage private investment in road transport; to this end, it is essential that state monopolization of road transport, which is believed to have discouraged potential investment, should be abandoned. Other measures that can be suitably applied are:

(*i*) Goods transport should remain entirely in private hands.

(*ii*) Passenger bus transport also should be developed mainly by private enterprise. Government-sponsored services should operate only where private enterprise is not forthcoming or to serve as a model for private services, but should not be granted a statutory monopoly.

(*iii*) The Motor Vehicles Act, 1939, should be revised so as to remove all unnecessary restrictions on the loading and operation of trucks beyond particular regional boundaries. These restrictions are particularly responsible for inhibiting the development of motor transport in the country.

(*iv*) Import of vehicles and spares should be permitted in quantities sufficient to ensure reasonable expansion of the transport fleet and adequate maintenance of the existing vehicles.

(*v*) Measures should be taken to increase the assembly capacity for trucks and buses and to encourage manufacture of spare parts locally.

(*vi*) As far as possible, there should be standardization of transport vehicles in order to simplify the problems of maintenance and supply of spare parts.

(*vii*) Small private operators should be encouraged to combine into large and more efficient units, which should make adequate arrangements for satisfactory maintenance of vehicles and for proper training of drivers and mechanics. Government-sponsored organizations should also provide training facilities for drivers and mechanics required by private operators.

(*viii*) There should be fair distribution of vehicles, spare parts, tyres and suitable sites for offices and garages, among claimants in the public and private sectors.

(*ix*) Procedure for granting transport operation permits should be simplified.

Development programme

90. *Semi-public sector.*—It is proposed to develop as models the existing government-sponsored bus services in West Pakistan and Karachi, and to introduce a similar service in East Pakistan. Private participation in these undertakings will be encouraged through sale of shares. For the West Pakistan Road Transport Board, an allocation of Rs. 75 million is made to cover the improvement and modest expansion of its services, replacement of about 900 old vehicles and a net addition of 500 buses to the existing fleet. For the Karachi Road Transport Corporation, it is estimated that the total investment programme will be about Rs. 32 million. This would complete

the building up of a fleet of 1,200 buses, by procuring 700 vehicles in addition to the 500 obtained in the First Plan period.

91. Passenger bus transport services in East Pakistan are entirely in private hands at present but are in a very poor state, mainly because the vehicles generally are worn-out war-time models. A corporation of the type of the Karachi Road Transport Corporation is proposed for East Pakistan to foster speedy development of bus transport in the Province. Initially a fleet of 200 buses will be introduced in Dacca and Chittagong to supplement the existing private services. A total allocation of Rs. 13 million is made for this purpose.

92. There will be an addition of 2,300 new buses to the transport fleet in the semi-public sector, including 900 buses required by the West Pakistan Road Transport Board as replacements. For any further development, government-sponsored agencies should depend on their own resources. The programme is summarized in Table 16.

TABLE 16

Road transport development programme, semi-public sector, 1960-61 *to* 1964-65

(Million Rupees)

	Government-financed	From own resources and foreign loans	Total
West Pakistan Road Transport Board	...	75·0	75·0
Karachi Road Transport Corporation	17·0	15·0	32·0
East Pakistan Road Transport Corporation ...	8·0	5·0	13·0
Total ...	25·0	95·0	120·0

93. *Private sector.*—Performance in the private sector will depend in some measure on public policy, especially in the matter of supply of vehicles and spare parts. It is estimated that under favourable conditions an investment of the order of Rs. 520 million will be made by private enterprise in goods and passenger transport during the Plan period. Of this, about Rs. 200 million is likely to be invested in passenger transport and about Rs. 320 million in goods transport, with the procurement of about 4,000 buses and 13,000 trucks, the necessary garages, workshops and other premises.

94. With these provisions in semi-public and private sectors, the number of vehicles available in the country by 1965 will be as shown in Table 17. In the perspective of the under-developed state of road transport at present, and the growing transport needs, this programme is the minimum essential.

TABLE 17

Buses and trucks in service, 1960 *to* 1965

	Buses			Trucks	Total vehicles
	Semi-public sector	Private sector	Total		
Number in 1960	1,800	7,200	9,000	16,000	25,000
Number to be retired 1960 to 1965 ...	900	2,400	3,300	5,000	8,300
Number to be added 1960 to 1965 ...	2,300	4,000	6,300	13,000	19,300
Number in 1965	3,200	8,800	12,000	24,000	36,000

Civil aviation

95. The First Plan made specific provisions for the training of technical personnel, improvement of airports and ground and navigational facilities, and acquisition of aircraft and other equipment. The schemes for the training of personnel of the Civil Aviation Department and the Pakistan International Airlines and the provision of necessary equipment for this purpose have made satisfactory progress. Training of technicians has been arranged both within the country and abroad.

96. The terminal building at Karachi—probably the most important air junction in Asia—was expanded in 1954 to meet increased traffic requirements. Modern equipment was provided at the airport to bring it up to international standards. The construction of a new runway for jet aircraft is now in hand. At Lahore, the runway was strengthened to accommodate large aircraft. Improved ground facilities and navigational aids were provided at Gilgit, Rawalpindi and Multan. At Dacca the runway was strengthened to take large aircraft, and further extension of the runway to 7,500 feet is in hand. A new terminal building was constructed and a pre-fabricated hangar erected. Improvements in ground facilities and navigational aids were made at Chittagong, Jessore and Cox's Bazar.

97. The Pakistan International Airlines, established in 1954, has strengthened its fleet of aircraft during the First Plan period. Two Super-Constellations, two Convairs, and five Viscounts were acquired, and three Fokker Friendship aircraft have been ordered for delivery in 1961. During 1955-60, PIA

operations expanded greatly : the number of passengers carried increased from 70,700 to about 208,000 ; air freight carried increased from 1,096 tons to 4,469 tons. The outlay during the Plan period on civil aviation, including the Pakistan International Airlines, is estimated at about Rs. 170 million against a provision of Rs. 78 million. This provision was made with the knowledge that it was subject to more than usual uncertainty owing to rapid changes occurring in civil aviation technique and equipment.

98. The process of building up air transport must be continued at somewhat faster pace than hitherto. Traffic figures indicate an upward trend of air-borne traffic which is likely to continue in future years. It is also essential to connect with the main air routes the less easily accessible areas, such as the north western part of East Pakistan, at present lacking in satisfactory transport facilities. As industrialization proceeds, the newly developed industrial centres will have to be fed by regular air services. Feeder services may not always be found financially justifiable on purely commercial considerations, and it may be necessary to subsidize such services until they become self-supporting. Emphasis must continue to be placed on the training of personnel of both the Civil Aviation Department and the Pakistan International Airlines. Rapid changes in techniques and equipment make this all the more necessary. The training programmes already under way with assistance from the United States are to be continued during the Plan period. Similarly, aircraft maintenance facilities have to keep pace with the type of equipment in use and the extent of operations. These facilities are at present available only at Karachi, and will have to be developed also at Dacca and Rawalpindi.

Ground and navigational facilities

99. Because most international airlines will now operate heavy jet aircraft, the Civil Aviation Department has already taken in hand the construction of a jet runway at Karachi, and proposes to construct a hangar for jet aircraft. Remodelling of airfields to meet the requirements of medium jet aircraft will be carried out at Chittagong, Dacca, Lahore, and Rawalpindi. The development of Nawabshah as an alternate airport to Karachi is an international obligation in the interests of safety of aircraft operation, and is included in the Plan. Operational improvements will be carried out at Gilgit and Skardu ; communication facilities and navigational aids will be improved at Multan, Quetta, Jiwani, Sylhet and Lalmonirhat ; runways at Lyallpur, Mianwali, Sukkur, Jessore and Cox's Bazar will be improved ; and a new runway in the Ishurdi area is planned to connect that part of East Pakistan with the air routes. The development of Chilas as an alternate airfield to Gilgit and Skardu is an operational need and is covered in the Plan. Turbat will be povided with an airstrip. Provision has also been made for the procurement of radio and other equipment for various aerodromes, and trainer aircraft for flying clubs.

Aircraft and air services

100. The programme of the Pakistan International Airlines provides for payment on aircraft already ordered, and for the purchase of four jet

aircraft along with spares and associated equipment in 1963 to replace the Super-Constellations now in service. To make the change over as smooth as possible, the PIA started operating in early 1960 on the international route a jet aircraft leased from Pan American Airways. The Super-Constellations replaced will either be sold or used for airlifting cargo. It is estimated that by 1965, the PIA will be carrying about 52 million ton-miles of long-distance freight traffic per year.

101. The existing international service to the Middle East and Europe will be augmented. Fokker Friendship aircraft will be used to expand the services within the country and to improve those to India and Burma. The inter-provincial services will be operated by jet aircraft. New scheduled air services will be organized to link up Sylhet, Ishurdi, Jiwani, Turbat, Multan, Mianwali, Lyallpur, Gilgit and Skardu with the air routes. A direct service between Ralwalpindi and Dacca may become justifiable with expanding traffic prospects.

102. Since air transport technique and equipment change rapidly, the allocations summarized in Table 18 below may need revision at a later date.

TABLE 18

Civil aviation development programme, 1960-61 *to* 1964-65

(Million Rupees)

	Government-financed	PIA resources and foreign credit	Total
Civil Aviation Department	100	...	100
Pakistan International Airlines	33	163	196(*a*)
Total ...	133	163	296

(*a*) Of which Rs. 98 million will be paid by 1965 and the remainder financed by foreign credit.

Posts, telegraphs and telephones

103. At Independence the postal and telecommunications services in Pakistan emerged as disjointed segments of the communication system of the subcontinent. Major adjustments in the collection and distribution of traffic and rapid organization of new facilities at Central and Provincial capitals were some of the tasks that needed immediate attention. Substantive improvement in the efficiency and range of service took place during the First Plan period. The problems that still beset these services are basically those of speed, smoothness and accuracy of performance, and the mounting pressure for meeting the rising demand in cities and for spreading facilities to rural areas where these do not at present exist. There is room for improvement in the quality of service through adoption of suitable equipment, techniques and operating procedures.

Proposals in the Second Plan

104. There has been substantial enlargement of the posts and telegraphs services during the First Plan period. The total development expenditure on posts, telegraphs and telephones during the First Plan period is estimated at Rs. 254 million against a provision of Rs. 219 million. The programme for the Second Plan provides for a continuation of this expansion, as shown in Table 19.

TABLE 19

Number of post offices, telephones and telegraph offices, 1955 *to* 1965

	1955	1960	1965	Percentage increase 1955 to 1960	Percentage increase 1960 to 1965
Number of post offices	7,998	9,850	11,150	23	13
East Pakistan	3,490	4,150	4,670	19	12
West Pakistan	4,508	5,700	6,480	25	13
Number of telephones	37,000	75,000	1,20,700	102	60
East Pakistan	5,800	12,500	26,200	116	110
West Pakistan	31,200	62,500	94,500	100	51
Number of telegraph offices ...	940	1,040	1,340	10	29
East Pakistan	360	400	520	11	30
West Pakistan	580	640	820	10	28

105. Provision has been made for the strengthening of the trunk net-wor and for the consolidation of the Haripur telephone factory. Establishmen of a telephone cable factory has been provided for in the industry programme Provision has also been made for expansion of training facilities for post and telegraphs personnel, limited construction or acquisition of building and staff quarters, and for a small extension to the testing laboratory a Karachi. The total cost of the programme for posts, telegraphs and tele phones will be Rs. 316 million in the public sector. Details of achievement during the First Plan and proposals for the Second Plan period are given belov

Postal services

106. In 1955 the number of post offices in the country was 7,998 ; b 1960 the number has risen to 9,850. Departmental mail motor services we introduced at Karachi, Dacca and Chittagong ; and urgently-needed post buildings have been constructed in several important towns. It is now pro posed to open 1,300 new post offices—1,000 in rural and 300 in urban area For reasons of economy it is intended that agencies (extra-department

offices) rather than offices manned by regular postal staff will be opened; transactions at the less important offices will be limited to the sale of stamps and other minor services, and adjacent villages will share a single agency. In the urban areas the larger commercial establishments and other private agencies will be encouraged to provide elementary postal facilities to the public Departmental mail motor service will be expanded with adequate maintenance facilities for the vehicles. The "all up" air mail scheme will be extended to as many important centres as possible, including stations to be linked by scheduled services during the Plan period. Gradual replacement of unsuitable and dilapidated buildings, as well as outright purchase of suitable buildings for departmental use, will be undertaken within the available resources. Provision has also been made for the extension of training facilities for the postal staff, and for a limited number of staff quarters.

Local telephone system

107. Starting with only 12,500 telephones in the country in 1947 the number increased by 1955 to 37,000 telephones (5,800 in East Pakistan and 31,200 in West Pakistan including Karachi). The number of telephone exchanges increased from 242 to 439 during the same period. The First Plan target of 38,000 additional telephones has been achieved, resulting in an increase of 6,700 telephones in East Pakistan and 31,300 in West Pakistan including Karachi; 76 new telephone exchanges have been opened and 26 old ones expanded. It has not been possible to instal telephones fast enough to meet demand, which is likely to increase still more rapidly. Unsatisfied demand for telephones at the moment is 20,000 connections. Taking into account the capacity of the Haripur telephone factory and the increased departmental competence in installation, a target of 45,700 new telephones (13,700 in East and 32,000 in West Pakistan including Karachi) is set in the Second Plan. This may, however, fall short of demand, particularly in urban areas. Measures such as a money deposit with the application may have to be adopted to check less pressing demand till the supply of telephones and cables can be further increased. It may be necessary also to increase the installation fee and line charge and the flat rate rent for residential telephones in response to the rising cost of telephone and line equipment, particularly in exchange areas where cable has to be used extensively.

Trunk telephony

108. By 1955, trunk exchanges had been installed at eight important centres (Dacca, Rawalpindi, Chittagong, Lyallpur, Sargodha, Lahore, Karachi and Quetta). Three high frequency radio telephone channels had also been provided between East and West Pakistan. The number of inland trunk telephone calls increased from 330,000 in 1947 to 1·70 million in 1955. The First Plan provided for the extension of trunk facilities to about a hundred new locations. Twenty new exchanges were to be installed and the existing exchanges were to be expanded. A very high frequency network radiating from Dacca was to be provided in East Pakistan. Some

twenty new centres in the country were to be linked by radio. Additional wireless links were to connect Karachi, Rawalpindi, Dacca, and Chittagong. The programme for the provision of trunk facilities to 100 new locations has been completed. Eight new trunk exchanges were installed, and ten existing exchanges expanded. In East Pakistan the very high frequency network radiating from Dacca is nearing completion. In West Pakistan, a co-axial cable is being laid between Karachi and Lahore, and the portion between Karachi and Hyderabad has been completed.

109. Wireless telephone communications have been provided between Khulna and Mangla; Khulna and Barisal ; Multan and Dera Ghazi Khan ; Thatta and Sujawal, and Kharan and Kalat. Telephone communications are also being provided between Malakand and Chitral ; Dera Ismail Khan and Bhakkar ; Khuzdar and Kalat, and Karachi to Ormara, Pasni and Gwadar. The number of radio-telephone channels between East and West Pakistan has been increased to six.

110. The number of inland trunk calls in 1959 was 4·03 million (more than double the number in 1955) and is likely to increase further with the increase in the number of telephones. This will necessitate strengthening of the trunk system. Trunk service will also be extended to places not yet connected with the main network. In West Pakistan, the trunk system will be augmented by completing the co-axial cable linking Karachi, Hyderabad, Sukkur, Multan, Sargodha, Rawalpindi, Lyallpur, and Lahore ; and communication facilities at Rawalpindi will be considerably increased to meet the needs of the capital. In East Pakistan, similar results will be achieved through the very high frequency network connecting Dacca, Chittagong, Sylhet, Mymensingh, Rangpur, Kushtia, and Khulna. Circuits connecting Dacca and Chittagong with Rawalpindi and Karachi will be improved and expanded as resources permit. The provision of more circuits of a reliable and interference-free type between East and West Pakistan is necessary and provision is made in the Plan for a study for the development of a suitable multiple-channel inter-Province telecommunication link.

111. About a hundred new public trunk call offices will be provided in the outlying areas. Provision has also been made for the introduction of subscriber-dialling on some of the congested sections of trunk lines to attain speedy and more effective handling of trunk call traffic. Additional trunk circuit capacity should become available with the completion of the schemes already in hand and those in the Plan. The aim is to evolve a trunk-line network suitable for introducing nation-wide direct dialling later.

International telephony

112. The country did not inherit any international telephone connections, and in 1947 telephone contact with countries outside the sub-continent was effected *via* Bombay. Telephone communications were, however, soon

established between Karachi, London, and Berne and later with Cairo, Tehran and Baghdad. A direct circuit was also provided between Dacca and London in 1954. During the First Plan period, direct links were provided between Karachi, Jeddah, Kabul, Osaka, Hongkong and Colombo, and between Dacca and Manila.

113. Pakistan occupies a central position in the line of communication between the Far East and the Near East and Europe. A multi-channel microwave link between Pakistan, Iran and Turkey will provide a number of suitable telephone and telegraph circuits, and connect these countries with the European communication system, and through Europe to America. Direct facilities will be available to West Pakistan initially, but will be extended to East Pakistan *via* the future inter-provincial link. A limited number of additional international high-frequency circuits emanating from Karachi, Rawalpindi, and Dacca will be provided. Telecommunication facilities between Pakistan and Afghanistan are outmoded and wholly inadequate, and need to be improved. Direct communication with other neighbouring countries, such as Burma, is also proposed. Some of the telecommunication centres in the country are well situated to become effective transit centres for telegraph and telephone traffic between the Far East and the West. This aspect of international telecommunications needs to be developed ; and transit operations should be initiated urgently at Karachi.

Telegraph services

114. The expansion of the telegraph service, begun immediately after Independence, resulted by 1955 in the number of combined post and telegraph offices reaching 940. A voice-frequency telegraph system for working teleprinters between East and West Pakistan was established. The number of inland telegrams increased from 2·20 million in 1948 to 3·25 million in 1955. The First Plan proposed that 100 post offices in rural areas should be provided with telegraph connections. In the cities, the installation of ten teleprinter exchanges and teleprinters for a number of subscribers was proposed, and new telegraph circuits both within Pakistan and for connections with other countries were to be provided. Important connections such as Dacca-Chittagong and Lahore-Karachi were to be provided with 18 telegraph channels to provide enough capacity to handle the increasing traffic.

115. The target of 100 combined post and telegraph offices has been achieved. Teleprinter exchanges have been installed at Karachi, Lahore, and Dacca with about 50 teleprinter subscribers. Leased teleprinter circuits have been provided to government departments, news agencies and private users within Pakistan, as well as over the international link between Karachi and Amsterdam. The phonogram service has been extended to meet demand. Telegraph circuit capacity has been increased within each as well as between the Provinces. The international telegraph service terminal at Karachi was taken over from Cable and Wireless Limited in 1957. International radio telegraph circuits now link Karachi with Tehran, Peking, Moscow, Paris,

London, New York, Osaka, Amsterdam, Hamburg, Goa, and Jeddah. Dacca is linked with London and Manila. International telex circuits were provided between Karachi, Amsterdam, Osaka and London. Telex service is now available for Germany, Belgium, Sweden, Holland, and the United States *via* Amsterdam. Eighteen telegraph channels between Karachi and Lahore, and twelve channels between Dacca and Chittagong have been provided. The number of telegraph circuits between East and West Pakistan has been increased from four to eight. Photo-telegraph service has been provided between Karachi and Dacca, and Karachi and London. The number of inland telegrams rose in 1958 to 4·04 million, an increase of nearly 24 per cent over 1955.

116. The extension of the telegraph service, especially to rural areas, is to continue during the Second Plan period ; the target is to provide at least 200 new telegraph connections in the rural areas, and about 100 connections in the urban areas by 1965. Public teleprinter exchange (telex) services will be extended to Chittagong, Rawalpindi, and Khulna. Teleprinter exchanges will also be provided in the telegraph offices at Lahore and Dacca. Efforts will continue to be made to popularise the leased teleprinter circuit service, inland as well as international. The expansion of phonogram service in the urban areas is proposed in step with demand. Provision is made also for an increase in the telegraph circuit capacity, inland as well as international. The speed of delivery of telegrams will be improved through provision of faster transport, such as motor scooters for telegraph messengers and decentralization of delivery work in the expanding cities.

Training

117. Training facilities have been built up from scratch, and more than 3,000 technical and supervisory staff in the telecommunications branch and nearly 8,000 postal staff have been trained. Four new regional schools for the training of postal staff and three for the telecommunication staff will be established. A continuous programme of on-the-job and in-service training for the departmental staff is indispensable in order to maintain reasonable standards of technical efficiency in this service.

Workshops

118. No workshop or manufacturing plant was in existence in Pakistan at Independence. The Haripur telephone factory was set up in 1954, and can now manufacture telephone and switching equipment including some varieties of manual boards with sizeable savings in foreign exchange. It is proposed to consolidate the production of this factory and to expand it to include allied items such as assembly of long-distance dialling equipment, voice frequency telegraph equipment, teleprinter exchanges, and teleprinters. This will meet the demand for additional equipment required for the expansion of telecommunications, will make fuller use of the available trained staff and will save foreign exchange.

119. The Kotri and Dacca telegraph workshops have been developed to provide line stores. It is now proposed to manufacture underground telephone cables in the country. Underground cables form an integral part of telephone installation and account for 40 to 45 per cent of the total cost of a telephone system. Full benefit of the manufacture of the telephone and line equipment cannot be derived unless regular and adequate supply of telephone cables is also forthcoming. The Department has to import about Rs. 6 to 7 million worth of cables annually. It is proposed to set up a cable factory to replace these imports; this should result in an estimated gross saving of Rs. 2·7 million per annum in foreign exchange, and a net saving of Rs. 1·4 million per annum. It shoud also help in training departmental staff in the special problems of cable manufacture and maintenance.

Broadcasting

120. Existing broadcasting facilities are very inadequate, hardly ten per cent of the country's area being served at present. In particular, there is a dearth of high-power short-wave transmitters ; as a result, broadcasts from East Pakistan cannot be heard in West Pakistan. The need for strengthening the broadcasting services has assumed still greater urgency with the emergence of institutions of Basic Democracies.

121. In 1947 there were only three medium-wave broadcasting stations, at Lahore, Peshawar, and Dacca, with an output of 20 kw, broadcasting 27 programme hours a day. New stations were established at Karachi in 1948 and at Rawalpindi in 1950. By 1955 there were five regional stations, supported by eight ancillary transmitters, with a power of 170 kw, and broadcasting 105 programme hours daily in 17 languages.

122. The First Plan provided for an increase in the number of broadcasting stations and other facilities to obtain a more effective coverage in the country, with a primary service to the thickly-populated areas using medium-wave transmitters, and a secondary service to the rest of the country using short-wave transmitters. The total estimated cost of the scheme was Rs. 25 million, but only Rs. 13 million was spent, due to lack of funds. In 1960 there are ten broadcasting stations at Karachi, Hyderabad, Quetta, Lahore, Rawalpindi, and Peshawar in West Pakistan, and at Dacca, Chittagong, Sylhet, and Rajshahi in East Pakistan. Nineteen medium and short-wave transmitters with a power of 204 kw, broadcast 143 programme hours daily in 17 languages.

123. The high-frequency ranges used for broadcasting are already overcrowded and are becoming still more congested ; the problem is to produce a signal clear and strong enough to give good reception. Most countries are increasing the number and power of their transmitting stations to this end. Pakistan, as a comparative new-comer in this field, has no clearly allocated frequencies, and finds it extremely difficult to locate free channels for external services, particularly those directed towards the Middle East.

Unless more powerful transmitters are installed, it is not unlikely that the country may be excluded from the high-frequency spectrum. Reports from abroad, expecially the Middle East, show that reception of broadcasts from Pakistan is deteriorating.

124. *Medium-wave transmissions.*—In order to ensure that internal programmes reach the mass of the people, the broadcasting stations must cover the whole country adequately ; at present only a very small proportion of listeners can receive this service. Those outside the range of service can listen only to foreign stations with stronger signals. During the Plan period, three 100 kw medium-wave transmitters will be installed at Dacca, Lahore, and Rawalpindi.

125 *Short-wave transmissions.*—With only two 50 kw short-wave transmitters available at Karachi, it is becoming increasingly difficult to operate international and national services effectively. For the international services, at least four 100 kw short-wave transmitters are needed ; two were approved in 1959 for Rawalpindi and provision for another two is made in the Plan. For national services there is only a one-way link between West and East Pakistan ; Karachi can beam programmes to East Pakistan, but not receive them from Dacca. Provision is made in the Plan for reciprocal facilities through installation of high power short-wave transmitters at Dacca and Lahore.

126. *Broadcast receivers.*—Side by side with increased transmission facilities provision must be made for the reception of broadcasts, and the number of receivers increased considerably. The present number of broadcast receiver licences is about 151,000. Even though the number of listeners greatly exceeds that of licences, a substantially higher number of receiving sets will have to be provided. An inexpensive variety of transistor receiving set, preferably manufactured in the country, is the best answer. The broadcasting service is unlikely to become self-supporting for a long time to come. The case for the introduction of commercial broadcasting to augment the revenues, therefore, requires reconsideration.

127. *The programme.*—The Plan includes provision for the following broadcasting stations :

two 100 kw short-wave transmitters at Rawalpindi ;

one 100 kw short-wave transmitter at Lahore ;

one 100 kw short-wave transmitter at Dacca ;

one 100 kw medium-wave transmitter with broadcasting house and receiving centre at Rawalpindi ;

two 10 kw medium-wave broadcasting stations at Sylhet and Rangpur ;

two 10 kw short-wave transmitters at Lahore and Rawalpindi ;
one additional studio at Peshawar ; and
one receiving centre at Dacca.

128. Provision has also been made for recording vans and other accessories. It is expected that by the end of the Plan period there will be in the country 13 transmitting stations with 29 transmitters, having a total power of 654 kw. The whole of East Pakistan will be adequately covered by the medium wave, but in West Pakistan the coverage will still be less than 50 per cent of the area. The development programme for broadcasting included in the Plan is estimated to cost Rs. 40 million.

Tourism

129. In the past decade, international travel has increased enormously. International travel should not be regarded simply as a means of earning foreign exchange but should be viewed also in its wider aspect of bringing together the peoples of the world, so that each is able to understand the problems and appreciate the standpoint of the other. Tourism has become specialized and highly organized with important international repercussions ; and in many countries its development receives every encouragement from their governments. Pakistan must also treat tourism as a matter of considerable importance, provide the facilities and amenities necessary for its encouragement, and organize internal and overseas promotional campaigns.

130. In the past, travel to Asia from the West was an exceptional luxury indulged in by the privileged few, but the phenomenal development of air transport and the promotional efforts of the airline companies and international travel agencies now bring holidays in these regions within the reach of a wide range of people, in particular from North America. The new travellers do not seek luxury treatment or accommodation, but look for clean and comfortable travel and hotel accommodation at reasonable prices. With a suitable enhancement of amenities, the country can build up a substantial tourist traffic. Current foreign exchange earnings from the spendings of foreign tourists have been estimated at Rs. 25 million a year ; given the effort, these can be greatly increased.

131. Foreign tourists are generally interested in the life of the people, their history, their handicrafts, and in domestic art and culture. The visited country must cater for these interests. There are many archaeological and historical monuments of great interest in Pakistan, and places where nature has been lavish. Visits to such places should be encouraged, with well-produced guide books and trained guides. Tourists should be able to see articles belonging to earlier civilizations, and also suitably exhibited articles produced in modern times, and should be able to buy pictures, souvenirs and refreshments. Service even in hotels in this country is not at present of the standard

which foreign tourists, particularly from United States and Europe, expect. Many countries, conscious of the service expected by tourists, have established training institutions for hotel and restaurant personnel. Similar institutions should be established in Pakistan with expert assistance from countries where hotel-keeping is now a flourishing industry.

132. Apart from the advantages of developing foreign tourism, there is a strong case for opening up the country to its own people. Organized visits to places of archaeological and historical interest, to parts of the country famous for their natural beauty, and to sights which reflect the impressive achievements of modern Pakistan, will help the people to appreciate the greatness of the country to which they belong.

Development programme

133. The Directorate of Tourism has prepared a long-term plan which includes the construction of hotels and rest houses, and the provision of other amenities for tourists in various places of interest. The following are provided for in the public sector :

(*i*) construction of rest houses in the Kaghan valley and Kafiristan, and at Chitral, Mohenjodaro, Harappa, Landi Kotal, Balloki, Hiran Minar, Skardu, Gilgit, Sylhet, and Kaptai;

(*ii*) provision of log cabins in the Kaghan Valley, at Rama in the Gilgit Agency and in the Sunderbans, and huts and boats at Satpara Lake, Skardu;

(*iii*) development of Kalri Lake Scheme;

(*iv*) improvement of Kawai-Naran Road in the Kaghan Valley, and construction of a link road between Dokri and Indus Highway included in the roads programme;

(*v*) construction of 2·5 miles of road connecting Bhambore to Karachi-Thatta road and improvement of 5 miles of road from Comilla to Mainamati monuments; and

(*vi*) provision of an airstrip and improved accommodation at Mohenjodaro.

134. In the private sector, provision is made for :

(*i*) construction of two first class modern hotels, at Karachi and Rawalpindi;

(*ii*) expansion and improvement of existing hotels in principal cities and hill stations in Pakistan; and

(*iii*) provision of adequate transport, including mini-buses, self-driven cars and jeeps at places of tourist interest.

135. The proposed expenditure on tourism is shown in Table 20.

TABLE 20

Tourism development programme, 1960-61 *to* 1964-65

(Million Rupees)

	Public sector	Private sector	Total
Hotels	2·5	108·0	110·5
Rest houses	1·7	...	1·7
Roads	1·0	...	1·0
Transport	...	3·0	3·0
Sporting facilities	0·1	...	0·1
Other facilities	3·7	...	3·7
Total	9·0	111·0	120·0

which foreign tourists, particularly from United States and Europe, expect. Many countries [illegible] by tourists have [illegible] training institutions for hotels and restaurants. [illegible] institution should be established in Pakistan with expert assistance from countries where hotel-keeping is now a flourishing industry.

132. Apart from the advantages of developing foreign tourism, there is a strong case for opening up the country to its own people. Organised visits to places of [illegible] and historical interest, to parts of the country famous for their natural beauty, and to sights which reflect the significant development of modern Pakistan, will help the people to appreciate the [illegible] of the country to which they belong.

Development programme

133. The Directorate of Tourism has prepared a long-term plan which includes the construction of hotels and rest houses, and the provision of transport for tourists at various places of interest. The following are provided for in the public sector:

(i) construction of rest houses in the Kaghan valley and Kalam [illegible] and at Chitral, Mohenjodaro, Harappa, Landi Kotal, [illegible] Khan Bela, Skardu, Gilgit, Swat and Kaptai;

(ii) provision of log cabins in the Kaghan Valley, at [illegible] in [illegible] Agency and in the [illegible] huts and boats [illegible] Satpara Lake, Skardu;

(iii) development of Kalri Lake, Karachi;

(iv) improvement of Kaghan-Naran Road in the Kaghan Valley; [illegible] construction of a link road between [illegible] and Indus Highway [illegible] included in the roads programme;

(v) construction of 2.5 miles of road connecting Bhambore [illegible] Karachi-Thatta road and improvement of 5 miles of road from Comilla to Mainamati monuments; and

(vi) provision of an airstrip and improved accommodation at Mohenjodaro.

134. In the private sector, provision is made for:

(i) construction of two first class modern hotels, at Karachi and Rawalpindi;

(ii) expansion and improvement of existing hotels in principal towns and hill stations in Pakistan; and

(iii) provision of adequate transport, including mini-buses, [illegible] driven cars and jeeps at places of tourist interest.

135. The proposed expenditure on tourism is shown in Table 20.

CHAPTER 12

HOUSING AND SETTLEMENTS

THE housing and settlements programme embraces the planning of physical environment essential for the harmonious development of urban and rural communities. In its broad sense it is concerned with land use, transport and utilities, dwelling houses, public buildings, and other social, cultural and economic facilities and conveniences necessary for the pursuit of a useful and happy community life.

2. Before Independence the growth of towns was slow. After 1947 of some nine million displaced persons who entered the country, more than a million and a half came to Karachi alone and a large proportion of the rest squatted in other towns, creating slums and over-crowding. By 1951, there were some 100,000 villages and 242 towns and cities in the country. The population of 186 of these towns and cities was between 5,000 and 25,000 persons, and that of the remaining 56 was above 25,000 persons. Since then urbanization has been accelerated by the rising tempo of economic development. Living conditions in towns and villages have worsened, as the growth of population has rapidly outpaced housing and community services, with highly deleterious effects on health and social conditions. In most towns, water supply, sewerage, drainage, electric supply, internal road networks, and communication systems are inadequate. Apart from the problems presented by extreme poverty, there is not enough developed land available to allow the people to build even temporary structures on sites where certain basic community facilities may be available. The village house, in which some 85 per cent of the people live, is an inferior structure, and communal facilities in rural areas are extremely scanty.

Performance under the First Plan

3. The First Plan allocated Rs. 861 million in the public sector for the most essential needs in housing, water supply, drainage and sanitation, and other needs of urban and rural communities. The programme was directed towards town improvement, construction of new refugee colonies and completion of those under construction, development of plots and self-help housing. Offices and staff houses required by the Government were included in the programme. The rural programme provided mainly for sinking of tube-wells and for pilot projects for rural housing.

4. Execution of both the urban and rural programmes fell short of targets, with the exception of the construction of government offices, where the provisions of the Plan were substantially exceeded. Preliminary studies were carried out for the water supply and sewerage requirements at Dacca and Chittagong ; a few colonies for displaced persons were built in West Pakistan ; and a sizeable number of displaced families were rehoused in Karachi. Generally, however, the policies proposed for the public sector were not

observed, the programmes were only incidentally followed, and the priorities were confused because of uncoordinated implementation by the several departments concerned with the programmes. Performance in the private sector, on the other hand, was better in quantitative terms, and exceeded the Plan target. Some investment in housing was encouraged by long-term credit facilities provided by the Government directly or through the House Building Finance Corporation. Most of the construction was, however, luxury housing undertaken by the relatively wealthy.

5. The housing and physical planning needs of the community are great and pressing but the available resources are extremely limited. The Second Plan programme, therefore, is designed to meet the most urgent requirements and to lay the ground work for the future. The programme consists of four parts ; (i) basic development ; (ii) housing ; (iii) water supply and sewerage ; and (iv) construction of new Capital and Government offices.

Basic development

6. A number of primary issues need to be solved effectively before a large scale programme can be launched with any prospect of success. The housing and settlements programme relates to local communities and local bodies. These are as yet relatively under-developed and rely heavily on the policies and programmes of the respective Provincial Governments. The responsibilities for planning, programming, designing and execution of municipal works are dispersed. Municipalities, improvement trusts and development authorities plan and execute various projects directly or through the Provincial Public Works Departments, under the general but somewhat uncoordinated guidance of Provincial Governments. The problem was recognized in the First Plan and proposals were made for creating appropriate units for housing and settlements. The proposals were not implemented, but the need for appropriate administrative organization remains as strong as ever. It is recommended that housing and settlements units be established in the Provincial departments and the Central Ministry responsible for public works. The Central unit, which has a nucleus in the recently created housing section in the Ministry of Works, should act as a coordinating and advisory agency. The Provincial units should deal with four principal subjects : town and regional planning, architectural design, utilities, and research. Projects should be executed through the existing agencies, with the institutions of Basic Democracies taking over some of these responsibilities more effectively. It is recommended that these units should be created by regrouping existing facilities and staff, adding only the most essential new professional and other personnel, headed by qualified town planners and architects. These recommendations will entail some additional expenditure, for which the Plan allocates Rs. 1 million to each Province and Rs. 800,000 to the Centre.

7. Much work is required to be done in the collection of basic data and assessment of housing conditions and needs throughout the country. The work should include a housing census, socio-economic analyses of communities, topographical and other planning surveys. Some outmoded scattered

legislation affecting housing does exist, but it needs modernization. Appropriate laws are needed for town planning, regional planning, housing, and land acquisition and control ; these should be framed independently for each Province in the light of existing conditions. The housing law should lay down minimum space standards for various types of housing in the light of the climatic, social and economic conditions. There is an urgent need in both Provinces that the various geographical regions evolve their own planning standards for residential densities, space, design of neighbourhoods, sub-division of land; construction, sanitary, electrical and fire codes; and air and water pollution regulations.

8. Development of urban areas needs to be properly guided through town plans, which are a vital need of all the large cities. It is essential that these plans should be prepared, not for limited boundaries as at present, but for the whole of the urban complex and its environs. The Plan allocates Rs. 17 million for preparation of plans for selected towns in East and West Pakistan, and Rs. 1 million for preparing a plan for Karachi region.

9. Physical planning work is handicapped by lack of data and appropriate land use maps. The preparation of provincial land use maps for the physical planning of various regions can start immediately on the basis of the geographical maps prepared by the Survey of Pakistan, some land use maps of the Forest department, and the aerial survey conducted some years ago. Where no detailed information exists, it should be collected by sample or detailed surveys as the case may be. The provincial land use maps should show existing land uses, sizes of urban and rural areas, sources of water supply and power, location of raw materials, transport networks and other planning details. These maps should be supported by detailed reports giving economic and social data for various regions. When these maps are available, the Government will be in a better position to consider which areas ought to grow, where growth should be checked, and how and where to disperse industry. Regional studies are essential initially for selected regions in each Province. These studies should provide a much clearer picture of the existing conditions of the regions, and permit conclusions about possibilities of balanced urban and rural development. Once land use maps and regional studies are available, a more comprehensive policy for rural development can be adopted. New areas such as those developed by irrigation schemes offer opportunities for village planning, which should be exploited by associating town planners with the land development schemes.

10. There is a marked difference between village patterns and problems in the two Provinces, requiring separate approaches and development policies. But basic research in building materials, experimental houses and cheap and effective sanitation for rural areas should be started promptly, under Government leadership. A provision of Rs. 2·5 million is made for the initiation of village development programmes in selected areas, principally on a self-help basis. The Government's contribution should be limited to technical advice and construction of model houses designed according to local conditions and materials. Improvements such as the construction

of a separate stable for animals adjacent to the family compound will go a long way towards bettering the lot of the villager. It is important that suitable toilet and bathing facilities should be provided for each rural family. Appropriate solutions for each area should be determined through experimentation.

11. In the country's housing development maximum use should be made of local materials. In West Pakistan roughly 70 per cent of the dwellings are made of mud, and 30 per cent use bricks, stone or concrete. In East Pakistan, roughly 60 per cent of the dwellings use bamboo, 30 per cent bamboo and timber, and 10 per cent brick. Research in soil stabilization methods and the possibilities of timber and bamboo for building construction needs should be developed. Very little research has been done on functional and economical housing designs and standards. Because of increasing pressure on land, such research is urgently required. A provision of Rs. 4·9 million is made in the Plan for establishing building research stations in each Province, and initiating experiments in construction techniques, housing design, and revision of codes and specifications.

12. Shortage of qualified architects and town planners is acute. The programme provides for the establishment of two colleges of architecture and town planning within the existing universities at Lahore and Dacca. A sum of Rs. 6 million is allocated to cover the initial expenditure for this purpose. It is recommended that post-graduate courses in municipal, water supply and sanitary engineering be started at the existing engineering colleges. Provision is made for such post-graduate training in the education sector programme. At present there are not adequately organized facilities for training building craftsmen such as carpenters, masons, plumbers and painters. It is recommended that three building trade schools in East Pakistan and four in West Pakistan be set up. The programme provides Rs. 1·4 million for establishing these schools.

Housing

13. Housing shortage, particularly in the urban areas of the country, is serious. There is scarcity of developed land for building, the production costs of dwelling units is high, and the demand is rising due to population growth, inflow from rural areas, and changing family patterns. These difficulties have to be handled by joint efforts of the Government and of private enterprise. Actual construction of houses by the Government should be limited to nucleus houses for destitute displaced persons and the most essential needs of government servants, but the Government should provide technical advice and generally guide the pace and nature of housing development by other agencies. Local bodies should be encouraged to develop land, while lower income groups should be enabled to construct houses through cooperative methods. Luxury construction should be discouraged. With increasing industrial development the pace of urbanization will be further enhanced. This will demand carefully spelled out land and rent policies. It is recommended that these policies should be so devised that fair incentives are offered to the public to invest in housing.

14. The housing programme proposed in the Plan is modest, and is composed of direct government construction, semi-public and private enterprise. The Government will develop a maximum of 300,000 plots for housing shelterless displaced persons and other low income groups. Houses will not be built by the Government, except nucleus units for the destitute; the plots will otherwise be built upon by the people themselves under professional guidance. The programme lays first emphasis on settlement of all shelterless refugees during the Plan period, and accordingly a major share of direct government investment is allocated to this programme.

15. It is expected that the House Building Finance Corporation will be able to subscribe Rs. 200 million towards the construction of housing, primarily for low-income groups. The Corporation should receive Rs. 120 million from the Government and raise the balance of Rs. 80 million through deposits or equity finance. The operations of the Corporation have hitherto been inevitably over-concentrated at Karachi, and should in future be extended more widely to other areas. There may also be a case for the Corporation to build its own housing units and to sell them on an instalment basis. A sum of Rs. 160 million is allocated in the Plan to meet the growing needs of improvement trusts and local bodies in West Pakistan. At Karachi, except for refugee rehabilitation, the Karachi Development Authority (KDA) a semi-autonomous organ of the Central Government, is responsible for the planning, programming, designing and execution of housing and settlements projects. It has completed preliminary arrangements for preparing a comprehensive plan for greater Karachi, for which an allocation of Rs. 1 million is included in the public sector programme. KDA is expected to undertake a housing and land development programme of Rs. 200 million during the Plan period. The plan allocates Rs. 160 million to meet the essential needs of Dacca Improvement Trust, Chittagong Development Authority, the proposed Khulna Development Authority and other local bodies in East Pakistan.

16. Insufficient data are availabe on the number of dwellings in the country and the percentage that meet minimum standards. With the limited information that is available, it is not possible to give a precise estimate of the housing shortage in the country though it is known to be very large. During the Plan period some 500,000 new urban family units may be formed. The direct government programme will only partially meet the needs of the new families, while the efforts of the local bodies and the public itself will help to alleviate the shortage to some extent. The programme seeks to meet the most urgent needs, and to lay the foundations for a long-range housing programme. Rs. 470 million are allocated in the Plan for meeting the most urgent needs in the public sector. Housing and land development activities of the KDA and other bodies are grouped in the semi-public sector, for which an allocation of Rs. 520 million is provided. Under most favourable circumstances the country may have some 300,000 new dwelling units during the Plan period, besides a fair proportion of houses for government employees, and industrial workers, and houses constructed

from contributions from local bodies. Industrial establishments are expected to provide housing for their employees, to be built by themselves, or through special housing corporations which the Government should be ready to support. The Government is expected to contribute Rs. 20 million for the initiation of such corporations, while the bulk of the finances will be raised by industrialists. Expenditure on housing in the private sector during the Plan period is estimated at Rs. 1,135 million, of which Rs. 950 million may be on dwelling houses in East and West Pakistan and Rs. 185 million on housing and related activities in the Rawalpindi Federal Area, and the Central zone at Dacca.

Water supply and sewerage

17. In both urban and rural areas there is great need for the provision of pure drinking water and sanitation. The Plan provides Rs. 125 million towards meeting this need in selected areas. In East Pakistan, a rural water supply plan has been prepared ; a similar plan should be prepared for selected areas in West Pakistan. As regards urban needs a provision of Rs. 185 million is made for water supply and sewerage systems in East Pakistan to cover the most immediate needs of Dacca, Chittagong and other selected towns. In West Pakistan a provision of Rs. 25 million is intended to cover projects in selected towns, and includes a sum for the preparation of a master plan for urban water supply and sewerage schemes ; for Karachi a sum of Rs. 110 million is allocated to cover the cost of water supply and sewerage needs.

The new Capitals and government buildings

18. Plans for the construction of the new Capital at Islamabad are being carefully prepared by the Capital Commission. Construction will extend over several years. For the phase of construction to be undertaken during the Plan period, a sum of Rs. 200 million has been provided. Another Rs. 20 million are provided to meet the auxiliary needs of the new Capital at Dacca, consisting of a President-*cum*-Governor's House and other essential government buildings. The need for other government buildings will impose a substantial burden on national resources especially in East Pakistan, where administrative reorganization may result in the creation of new administrative headquarters. The Plan provides for the construction of government buildings to meet only the most urgent requirements. It is recommended that programmes for the construction of new buildings should be coordinated and phased in the light of available resources.

Development in Special and Frontier Areas

19. The necessity of initiating physical development schemes in certain economically backward regions is recognized in the Plan. It is necessary that the requirements of these regions should be carefully studied and analyzed by development experts, and a well coordinated programme of physical development prepared. The Plan allocates Rs. 8 million to meet the most

pressing needs for housing and settlements in the Special and Frontier Areas.

Development expenditure

20. The programme has been designed on the basis of available and potential resources as well as with due regard to the limitations of essential building materials and professional talent. If fully implemented according to the recommended priorities and phasing, the programme should result in a perceptible improvement of living conditions. Even so, only a fringe of the problem will have been touched. The problem itself will demand, for its reasonably satisfactory solution, much larger programmes and heavier expenditures in years to come. The cost of the development programme proposed for the Plan period is Rs. 2,840 million. This is composed of public, semi-public and private sectors. The public sector programme is estimated at Rs. 895 million. The semi-public sector programme of Rs. 810 million is composed of government aid, local resources and potential private resources. In the case of semi-public sector, the Central Government and local bodies may provide financial assistance to the amount of Rs. 420 million. The balance of Rs. 390 million will be mobilized through private resources. The private sector programme is expected to be about Rs. 1,135 million. Table 1 gives the details of the proposed development expenditure in various sectors.

TABLE 1

Development expenditure in housing and settlements 1960-61 *to* 1964-65

(Million Rupees)

Public sector (by executing authorities)		East Pakistan	West Pakistan	Central Govern-ment	Total
Basic development programme :					
Essential organization of services ...	...	1·0	1·0	0·8	2·8
Planning surveys and legislation ...	...	1·7	1·7	...	3·4
Preparation of town plans ...	...	8·0	9·0	1·0	18·0
Regional land use maps, studies and village planning	...	3·0	2·5	...	5·5
Building materials and housing research	...	2·5	2·4	...	4·9
Colleges of architecture and town planning	...	3·0	3·0	...	6·0
Vocational schools for building trades	...	0·6	0·8	...	1·4
Sub-total	...	19·8	20·4	1·8	42·0
Housing :					
Plots and nucleus houses for shelterless displaced persons and general public	...	127·0	113·0	160·0	400·0
Houses for government servants ...	...	25·0	20·0	15·0	60·0
Ancillary projects	...	10·0	...	...	10·0
Sub-total	...	162·0	133·0	175·0	470·0

Public sector (by executing authorities)	East Pakistan	West Pakistan	Central Government	Total
Water supply and sewerage:				
Projects for selected rural areas	55·0	20·0	...	75·0
Projects for selected urban areas	25·0	25·0	...	50·0
Sub-total ...	80·0	45·0	...	125·0
New Capitals and government offices:				
New office buildings	20·0	10·0	...	30·0
New Capital at Islamabad	...	...	200·0	200·0
President-*cum*-Governor's house and new Capital at Dacca	...	...	20·0	20·0
Sub-total ...	20·0	10·0	220·0	250·0
Housing and settlements schemes of special regions	...	...	8·0	8·0
Total public sector ...	281·8	208·4	404·8	895·0

Semi-public sector (by location)	East Pakistan	West Pakistan	Karachi	Total
Karachi water supply and sewerage project ...	...	...	110·0	110·0
Water supply and sewerage projects for Dacca and Chittagong	160·0	...	...	160·0
Land development and related schemes of KDA	...	...	200·0	200·0
Schemes of trusts and local bodies in East Pakistan	160·0	...	...	160·0
Schemes of trusts and local bodies in West Pakistan	...	160·0	...	160·0
Industrial workers housing corporations	6·0	6·0	8·0	20·0
Total semi-public sector ...	326·0	166·0	318·0	810·0

Private sector (by location)	East Pakistan	West Pakistan		Total
Private housing activities in urban areas ...	400·0	550·0 (includes Karachi)	...	950·0
Private construction activities in new Capitals at Islamabad and Dacca	...	...	185.0	185·0
Total private sector ...	400·0	550·0	185·0	1,135·0
Grand total ...	1,007·8	924·4	907·8	2,840·0

PART III

HUMAN RESOURCES AND WELFARE

Introduction

ECONOMIC growth is dependent on the effective use of the human and material resources of the nation. Both require conservation and development. The wastage of either is an irreparable loss; their wise utilization is the key to progress. Of the two fundamental forms of wealth the human resources are clearly more important. Countries severely handicapped by scarcity of physical assets have reached high levels of welfare through the genius and capacities of their people. It is through the efficient application of human energy that social capital is created. Human resources differ from other forms of wealth in important ways. The time required for training people is longer than is needed for physical construction or the production of goods and services. It takes longer to prepare an engineer, an industrial manager, or an agricultural specialist than it does to dig a canal, build a factory, manufacture a machine, or produce materials for the market. Also, people are consumers as well as producers; they are the active agents as well as the object of development efforts. Energy is an attribute of human beings; they have beliefs and attitudes; they respond to ideas and incentives, and their effort is affected directly by the extent of their sharing in the results of their labour. Further, what is of paramount significance, human beings may multiply faster than production, and thus the welfare goals of development may be nullified.

2. By every means at its disposal the nation must endeavour to create the conditions, opportunities and incentives by which individuals can develop their capacities, strive for higher levels of fulfilment, and participate fully in economic and social life. One of the main purposes of the Plan is to accelerate development; this must include programmes which relate to human resources. A comprehensive approach to the training and use of human resources lies at the heart of planning. At a given moment the economic manpower of the nation consists of those who are engaged in or are available for the productive work of society. The size of this labour force fluctuates in relation to population growth, mobility, and changing demographic characteristics. It is affected by the changing levels and quality of educational attainment, the extent and accessibility of work opportunities, and the nature of prevailing incentives for work. It is also influenced by the changing role of women and their increasing participation in activities outside the home. A programme for human resources and welfare is concerned with population factors which determine how far labour is surplus or in short supply, with the characteristics of the educational system, the prevailing levels and standards of living, and the timing and pattern of industrial development.

3. The inter-relationship between many aspects of the development of human resources can be readily demonstrated. When vast numbers of the population are under-nourished, ill-clad, illiterate and under-employed and poor, the energies of the people are functioning at a low ebb. The

Public sector (by executing authorities)	East Pakistan	West Pakistan	Central Government	Total
Water supply and sewerage:				
Projects for selected rural areas	55·0	20·0	...	75·0
Projects for selected urban areas	25·0	25·0	...	50·0
Sub-total	80·0	45·0	...	125·0
New Capitals and government offices:				
New office buildings	20·0	10·0	...	30·0
New Capital at Islamabad	...	...	200·0	200·0
President's and Government's complex in the new Capital at Dacca	...	...	50·0	50·0
Sub-total	20·0	10·0	250·0	280·0
Housing and settlement [illegible] region	...	...	[illegible]	[illegible]
Total public sector	[illegible]	[illegible]	[illegible]	[illegible]

Semi-public sector (by location)	East Pakistan	West Pakistan	Karachi	Total
Karachi water supply and sewerage project	...	...	110·0	110·0
Water supply and sewerage projects for Dacca and Chittagong	160·0	...	...	160·0
Land development and related schemes of KDA	...	...	200·0	200·0
Schemes of trusts and local bodies in East Pakistan	160·0	...	...	160·0
Schemes of trusts and local bodies in West Pakistan	...	160·0	...	160·0
Industrial workers housing corporations	6·0	6·0	8·0	20·0
Total semi-public sector	326·0	166·0	318·0	810·0

Private sector (by location)	East Pakistan	West Pakistan		Total
Private housing activities in urban areas	400·0	550·0 (includes Karachi)		950·0
Private construction activities in new Capitals at Islamabad and Dacca	...	...	185·0	185·0
Total private sector	400·0	550·0	185·0	1,135·0
Grand total	1,007·8	934·8	[illegible]	[illegible]

Introduction

ECONOMIC growth is dependent on the effective use of the human and material resources of the nation. Both require conservation and development. The wastage of either is an irretrievable loss; their wise utilization is the key to progress. Of the two fundamental forms of wealth the human resources are clearly more important. Societies severely handicapped by scarcity of physical assets have reached high levels of welfare through the genius and capacities of their people. It is through the efficient application of human energy that social capital is created. Human resources differ from other forms of wealth in important ways. The time required for training people is longer than is needed for physical construction or the production of goods and services. It takes longer to prepare an engineer, an industrial manager, or an agricultural specialist than it does to dig a canal, build a factory, manufacture a machine, or produce an article for the market. Also, people are consumers as well as producers; they are the active agents as well as the object of all development effort. Energy is an attribute of human beings who have beliefs and attitudes, who respond to ideas and incentives, and whose effort is affected directly by the extent of their sharing in the results of their labour. Further, what is of paramount significance, human beings may multiply faster than production and thus the welfare goals of development may be nullified.

2. By every means at its disposal the nation must endeavour to create the conditions, opportunities and incentives by which individuals can develop their capacities, strive for higher levels of fulfilment, and participate fully in economic and social life. One of the main purposes of the Plan is to accelerate development; this must include programmes which relate to human resources. A comprehensive approach to the training and use of human resources lies at the heart of planning. At a given moment the available manpower of the nation consists of those who are engaged in or are available for the productive work of society. The size of this labour force fluctuates in relation to population growth, mobility, and changing demographic characteristics; it is affected by the changing levels and quality of educational attainment, the extent and accessibility of work opportunities, and the nature of prevailing incentives for work. It is also influenced by the changing role of women and their increasing participation in activities outside the home. A programme for human resources and welfare is concerned with population factors which determine how far labour is surplus or in short supply, with the characteristics of the educational system, the prevailing levels and standards of living, and the timing and pattern of industrial development.

3. The inter-relationship between many aspects of the development of human resources can be readily demonstrated. When vast numbers of the population are under-nourished, ill-clad, illiterate, sick, under-employed and poor, the energies of the people are necessarily at a low ebb. One

deficiency leads to another in an endless cycle of contagion. Economic and human aspects of the Plan programmes are also interdependent. Productivity is affected by conditions of health, education, and welfare among the workers and their families. The success of health measures, in turn, is partly contingent upon improvements in housing and public sanitation and in levels of literacy and understanding among the people. Personal and social requirements of families and individuals must be considered in setting standards for housing and community planning. The feasibility of certain forms of social insurance depends upon the development of medical and health facilities. Provisions for education and training must take account of population growth rates, the age and sex composition of the labour force, and prospective requirements of skills. The emphasis on literacy, and the relative weighting of technical and cultural components at the various levels of education, must be related to the need for better productivity and incentives for higher living standards among various groups of the community.

4. The human resources programme of the Plan is related to long-range perspectives and goals, but it is clearly not possible to advance simultaneously on all fronts at equal speed. Some programmes will not be productive in the short run. Concentration on the factors which positively and immediately limit the development effort is required.

CHAPTER 13

POPULATION

THE population of the country is increasing at a rate that presents serious problems for economic development and welfare. Although demographic statistics are deficient, there is substantial evidence that the population has been growing at irregular but generally accelerated rates during the half century from 1901 to 1951, and that the rate of growth has risen since 1951. In 1951, there were 75·84 million persons in the country as a whole. The population of East Pakistan was 42·06 million, and that of West Pakistan including Karachi 33·78 million.

2. Estimates of the population and the labour force will not be reliable until the census of 1961 is taken and its data tabulated. In the meantime the estimates for the years 1960 to 1965 can be framed only on incomplete evidence and judgements as to the size of the population and the changes in birth and death rates that may occur during the next few years. For the purpose of the Plan the rate of growth at the time of the 1951 census is taken as 1·4 per cent annually. It is further assumed that there was little change in birth rates whereas death rates were declining. The annual increment to the rate of growth is taken as ·02 per cent per year until mid-1955, and as ·03 per cent annually from that year to mid-1965. Additions were made for a small net migration into West Pakistan. The estimates of population for 1960 and 1965 on this basis are 88·9 and 96·9 million respectively. When the results of the 1961 census of population are available new estimates will be possible for the period 1960-1965 and succeeding years, and these can be applied in the ensuing development programmes.

3. Similar difficulties are found in estimating the numbers and proportions of the population who are either employed or seeking employment. In a society which is undergoing economic and social changes, an increasing proportion of the population participates in the labour force. However, the five-year period is so short and the limitations of the data so great that it is not reasonable to assume any change in labour force participation. In a society where nine-tenths of the population is rural and the agricultural labour force is three-quarters of the total*, and where most of the people are engaged in economic activities at subsistence levels, it is difficult to use the concepts of the labour force which have been developed in industrial societies.

4. It is assumed that the rate of labour force participation for the Plan period remains at the levels of 1955-56. The ratios used are based on the manpower survey of 1955-56; these are 31·8 per cent for Pakistan, 31·6 per cent for East Pakistan and 32·0 per cent for West Pakistan. The changes in the age structure of the population and in the rate of development

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*1951 Census data.

during the next five years, will not significantly alter the assumed rate of participation. The estimates are as shown in Table 1.

TABLE 1

Population and labour force, 1960 and 1965

(Millions)

	East Pakistan	West Pakistan	Total
Population			
1960	49·2	39·7	88·9
1965	53·7	43·2	96·9
Net increase	4·5	3·5	8·0
Labour force			
1960	15·6	12·7	28·3
1965	17·0	13·8	30·8
Net increase	1·4	1·1	2·5

5. As compared with advanced countries the population of Pakistan has a high proportion of dependents, low rates of life expectancy, low levels of health, a high incidence of disease and mortality, and an under-utilized labour force with prevalent illness and poor morale. The labour force is predominantly rural and agricultural and contains a significant element of landless agricultural labourers. Males predominate, particulary in organized industry. In spite of some expansion of job opportunities the volume of under-employment and unemployment at the beginning of the Second Plan remains approximately the same as at the beginning of the First because of the offsetting effects of population increase. The manpower surveys, conducted periodically since 1955-56 by the Department of Manpower and Employment of the Ministry of Health, Labour and Social Welfare, furnish some indication of a shift of employment away from agriculture and into manufacturing, trade, transport and service occupations. Some improvement in the educational levels of the non-agricultural labour force is also indicated.

Dimensions of future growth

6. Intensive and sustained programmes for longer life and smaller family size will not affect population growth during the decades immediately ahead. For some time to come reduction in birth rates is likely to be substantially less than the decline in mortality. Even under the most favourable assumptions as to the rate of reduction in birth rates, growth will be more rapid in the next few years than it would be if both fertility and mortality

remain at their present levels. The implementation of development plans, especially the extension of health facilities and coordinated attacks on disease, will produce substantial reduction in death rates. If birth rates decline only slowly while death rates fall continuously and rather sharply the growth of population will be rapid and continuous.

7. Recent population estimates of the United Nations provide the basis for illustrative computations of growth under hypothetical conditions. Such estimates indicate the critical nature of the country's population problem. If birth rates remain at their present levels while death rates decline markedly the total population may increase from 76 million in 1951 to as much as 170 million in 1981. It is not inevitable, however, that population should increase at these high rates. Actual rates of growth will be the balance of the interrelated changes in birth and death rates. These in turn will reflect the balance of the measurable and the intangible forces that stimulate or retard growth. Major determinants of the rate of growth include increases in food production, expansion of industrial employment, improvements in health, advances in education, and new aspirations among the people. The Plan provides for rapid social and economic development and educational advance. The Government has also recognized the urgent necessity of less rapid population growth, and has launched a programme for family planning. Actual progress in family limitation is bound to be slow, however, for deeply held attitudes and values must first be changed if a smaller family with few children is to replace the family with many children as an ideal. Under these circumstances the effort to develop the small family pattern will have to be intensive and sustained. If such an effort is made, it is possible that the level of fertility in 1981 will be appreciably lower than at present. However, even with concurrent and rapid decline in fertility and mortality, which would imply continuation of the current rate of growth, the population will probably reach 150 million by 1981.

Migration and urbanization

8. The migration into and out of Pakistan is not now large in relation to the size of the population. The movement of population from rural to urban areas within the country was greatly accelerated during the Second World War, and has after Independence continued unabated. According to the 1951 census (which defined urban areas as communities of 5,000 persons or more) only 10·4 per cent of the population were urban dwellers. There was great disparity between the two Provinces ; in East Pakistan town dwellers numbered only 4·4 per cent as compared with 17·8 per cent. in West Pakistan.

9. Many who leave subsistence farming in rural areas are lured by better opportunities for work which they think exist in the cities. But the urban areas cannot provide jobs for all the new comers, most of whom lack training, skill, and experience in industrial work, and who possess little information about job opportunities. Only a small proportion of them finds stable employment in industry, whereas the larger proportion is absorbed in petty trade and street selling, porterage, domestic service, odd jobs in construction

work, and casual employment. This process gradually transfers the underemployment and poverty of rural areas to the towns. Many who come from the closely knit and familiar environs of rural life are lost in the impersonal and unfamiliar urban settings. They cannot easily adapt themselves to industrial ways of life. Their difficulties are aggravated by ignorance, illiteracy, cultural differences, bad housing conditions and other physical hardships of the towns. Many of the migrants maintain close ties with the villages ; some find work but return again to their villages with small savings and others return because they cannot find jobs. This continual drift between villages and towns helps to create an unstable, unskilled and uncommitted labour force. The net migration into the towns leads to increasing pressure on housing, water supply, and other facilities, and results in physical, social and economic dislocation. Such conditions are obstacles to the acceptance of the urban environment and industrial employment as a permanent way of life.

Population problems and population policy

10. Since population growth can threaten to wipe out the gains of development, the Plan clearly recognizes the paramount need for a conscious population policy and its implementation. A population policy, however, must take into account many implications of population growth for other aspects of planning. The existing pressure of population leads to an intense struggle for the means of life at subsistence levels. Inadequate diet results in a prevalent malnutrition that cannot be cured by public health measures alone. Apathy is the companion of malnutrition and ignorance. Under these conditions people have meagre reserves of energy to strive for wider understanding and improvement.

11. The first stage in the strategic approach to population planning is that the problem should be clearly understood by the people themselves. Effective population policies cannot be limited to measures designed to reduce birth rates. They must aim at progressive increases in the length of life, the continuing improvement of health and vitality, and the attainment of a family size that is consistent with the welfare and social and economic opportunities of its members. They must take into account the relations between population growth and characteristics on the one hand, and economic development, social change, labour force utilization, health, and human welfare on the other. Improvements in the means of communication with the people are necessary if population policies are to be effective. Education, particularly the education of women, will have far reaching effects in the modification of attitudes. The spread of literacy and employment opportunities for women, desirable for many reasons, is directly related to the problems of population. Educated women can comprehend the possibilities of family planning more readily ; gainfully employed women tend to marry later and to have fewer children. Effective family planning requires a sustained determination within the individual family. The motivation for fewer children and more abundant life is more important than mere dissemination of knowledge of the means of

contraception. Widespread family planning will come only when people realize that rising standards of living are possible for them and their children.

12. A gradual decrease in the rate of population growth, with the consequent lightening of the burden on family earnings and a shrinkage in the amount of unemployment, will have an encouraging effect on the rate of industrialization. An over-plentiful supply of cheap labour leads to its wasteful utilization by employers, high turnover, and an apathetic response to factory discipline and acquisition of productive skills. Labour organizations make little headway when every separation finds quick and easy replacement from the over-flowing labour pool.

Population statistics and analysis

13. It will be necessary, during the Plan period, to take effective steps to overcome the present limitations of population data, vital statistics, and demographic analysis. Development of data-collecting mechanisms is called for to provide current estimates of the size and distribution of the population and its rates of growth. The forthcoming census will provide a picture of the situation in 1961. It is important that there should be continuing surveys of the current size and characteristics of the population and the levels of birth and death rates.

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12. A gradual decline in the rate of population growth with the consequent lightening of the burden of family maintenance and a shrinkage in the amount of unemployment will have favourable effects on the rate of industrialisation. An over-plentiful supply of cheap labour leads to its wasteful utilisation by employers, large turnover and an apathetic response to factory discipline and a situation of productive skilled labour conditions making it hard when every separation from a job is costly and easy replacement from the ever flowing labour force.

Population statistics and analysis

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CHAPTER 14

EDUCATION AND TRAINING

UPON education falls the supreme task of preserving the national ideals and building up the national character on strong foundations of faith, unity and discipline, without which no nation can aspire to greatness. The essential goals must be to provide an informed leadership, a responsible citizenry, and trained manpower. It is through the advancement of education alone that these goals can be achieved. No uneducated community has progressed far in the modern world, and no educated community with initiative and leadership has remained backward. An illiterate society clings to customs, traditions, and outmoded practices; it resists the forces of change which stimulate the acquisition of new knowledge and new skills. Training of human beings in all fields of endeavour is essential if a breakthrough is to be effected from a state of chronic backwardness, and the country is to move rapidly forward towards the attainment of the desired social and economic goals.

2. Educational advancement is a complicated process. To expand output at one level, expansion must take place at other levels. Primary, secondary, technical, vocational, and university education constitute a pyramid; the different levels must expand in step with one another. But a poor country lacks the resources to support the cost of simultaneous and equalized development at all points. A strict order of priorities among different branches of education is therefore necessary. From this standpoint, universal literacy is the most important goal to be pursued: how soon it can be reached is essentially a matter of resources. In the short run, there are practical urgencies which demand attention. Unquestionably, the first emphasis must be on skills which are vital for development. High priority has, therefore, to be assigned to technical and vocational education, and to specialized training in the most essential specific activities.

3. The quality and content of various types of education is of great importance. Choices are difficult to make: should the programme aim at higher quality involving more time and expenditure, or be satisfied initially with a more limited content, imparted more speedily, and at less cost? If the compelling consideration is speed, then preference must be given to numbers rather than to intensive development of depth and quality. These choices will be made differently for different levels of education and for different purposes. In the case of lower levels, such as primary and fundamental education, the emphasis must be on numbers and speed, while ensuring certain minimum standards. The higher the level and the more specialized the educational field, the greater must be the emphasis on quality.

Educational development during the First Plan period

4. The First Plan in its recommendations on the reorganization of the education system, laid stress on two points: first, to make up the qualitative

deficiencies in the educational structure, and second, to undertake such expansion in the system as was permitted by the limited resources. Accomplishments during the First Plan period, though by no means negligible, were in several respects disappointing. No significant improvements in the quality of school education were made. Primary school enrolment did not increase to the extent expected, although secondary school enrolment was appreciably higher. The training of teachers to meet the expanding requirements was satisfactory at the secondary stage but no increase was registered at the primary level. Technical education was given a high priority ; a noticeable increase was recorded in the output from the engineering colleges and technical institutes though progress was much below he Plan targets. More than sixty new colleges were opened, and he enrolment in the colleges and universities was doubled. Approximately Rs. 400 million (including recurring expenditure) was spent during the First Plan period, against the total allocation of about Rs. 580 million. Educational development during the First Plan period is summarized in Table 1 below.

TABLE 1

Educational development in First Plan period

	1954-55	1959-60
Primary education		
Schools	41,500	44,200
Enrolment	4,266,000	4,706,000
Secondary education		
Schools	5,475	6,000
Enrolment	869,000	1,099,000
Teacher training		
Primary teacher training institutes	97	75
Teacher training colleges	21	23
Annual output (primary teachers)	7,400	7,400
Annual output (secondary teachers)	1,300	1,800
Engineering education		
Technical institutes	7	8
Annual output (diplomas)	191	500
Engineering colleges ...	4	4
Annual output (degrees)	274	400
*Medical education**		
Colleges	6	9
Annual output	350	450
Nurses training centres	14	18
Annual output	152	200

*For details see Chapter 15.

TABLE 1—*contd.*

	1954-55	1959-60
Agricultural education*		
Agricultural colleges	4	4
Annual output	120	150
Animal husbandry colleges	2	2
Annual output	32	64
Forestry college	1	1
Annual output	2	3
Legal education		
Colleges	8	14
Annual output	710	800
Non-professional colleges		
Colleges	145	209
Enrolment	65,866	110,166
Universities		
Universities	6	6
Enrolment (non-professional)	3,900	7,400

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*For details *see* Chapter 7.

Commission on National Education

5. The Commission on National Education, appointed by the Government in 1958, made a comprehensive report in 1959. The report covered a wide range of subjects of vital importance to the future of the educational system. The central theme of the report, very rightly, was that education should be viewed as a productive activity and as an investment in human resources essential for the development of a progressive and prosperous welfare state. The educational system in the country specifically at he university level, should pursue quality as an essential objective, and its end-products in arts and science should be comparable in competence and achievement with those trained in advanced educational systems of the world. Scientific and technological education should receive particular attention and post-graduate courses should be introduced as an essential element of higher technical education. Among the recommendations made by the Commission, the following may be mentioned :

(i) Compulsory schooling for the age-group 6—11 should be provided within a period of 10 years, and within another five years for the age-group 11—14.

(*ii*) Encouragement should be given to the development of secondary schools of the residential type.

(*iii*) The curriculum at the secondary stage should provide a compulsory core of subjects as well as a few elective subjects in the fields of technical, agricultural and commercial studies to prepare the students for a vocational career in accordance with their interest and aptitudes.

(*iv*) The intermediate classes should be transferred from the jurisdiction of the universities to the boards of secondary education.

(*v*) The course of study for the bachelor's degree in arts, science and commerce should be extended from two to three years ; in engineering colleges the duration of the degree course should be four years.

(*vi*) Technical institutes should be established to produce personnel of the supervisory cadre in a variety of subjects, and commercial institutes offering professional courses should be established.

(*vii*) A comprehensive scholarships programme should be instituted beyond the stage of primary education, scholarships being awarded to the best students on the completion of primary and secondary education and at the college and university levels. The scholarships programme should be used to channel able students into those fields of study where the need for trained personnel is greatest

(*viii*) The development of a literate population must be the immediate primary objective of adult education.

(*ix*) In the future expansion of education, facilities provided for girls should be made adequate.

The principal recommendations of the Commission have been included in the Second Plan within the limits of available resources.

Programme for the Second Plan

6. The Plan provides for an expenditure of Rs. 890 million, including 100 million to be subscribed by the local bodies, on education and training in the public sector. In addition, it contemplates an increase in recurring expenditure to the extent of Rs. 508 million during the Plan period. The total of proposed development and increased recurring cost (excluding publicity services) amounts to Rs. 1,323 million, as against Rs. 580 million in the First Plan. A breakdown of the allocations in the public sector in comparable terms in the First and Second Plans is shown in Table 2. The details of allocations in the Second Plan are shown in Table 3. In addition, provision is made in the Plan for training and research in agriculture, industry, health, housing and settlements, and social service ; the costs are included in the respective sector programmes, and are summarized in Table 5.

7. Local communities through the institutions of Basic Democracies should participate more actively in the development of education, particularly by providing land, buildings and other basic needs of educational institutions. The Plan estimates that in West Pakistan buildings for educational institutions costing at least Rs. 60 million will be provided in this manner and that in East Pakistan the contribution will be Rs. 40 million. In the backward localities, community enterprise will be assisted by the Government in the construction of buildings and in the provision of equipment. The Plan provides Rs. 24 million for such areas in West Pakistan and Rs. 30 million in East Pakistan.

8. The private sector has in the past played an important role in the advancement of education. Most of the existing primary and secondary schools and some of the colleges were established through private effort. In earlier years many of the private schools and colleges maintained a good standard, and competed with government institutions in quality and efficiency. The very success they achieved, however, led to an unhealthy rivalry, particularly in the rural areas, and produced a large number of mushroom institutions incapable of maintaining high standards of instruction. Nevertheless, if the educational needs of the country are to be properly met, increasing reliance will have to be placed on private effort rather than on government resources to provide the necessary institutional facilities. Private contribution towards the development cost of the improvement of existing and the establishment of new educational institutions is expected to amount to Rs. 100 million. This is a modest expectation, and may well be exceeded as the economic condition of the people improves with the impementation of the Plan. The scale of private effort included in the Plan is shown in Table 4 at the end of this chapter.

Primary education

9. The First Plan contemplated 4,000 new primary schools in West Pakistan to be added to the 15,500 that were operating in 1955. In East Pakistan, where the 26,000 primary schools were adequate in number, 6,000 of them were to be improved. During the Plan period 2,400 primary schools were opened in West Pakistan, while apart from some improvement in teachers' salaries little was done in East Pakistan. It was anticipated that during the Plan period enrolment in primary schools would increase by about one million. The actual increase was only 440,000.

10. The objective of the Second Plan is to raise the proportion of children in the 6-11 age group who are actually attending school from the present figure of 42·3 per cent to 60 per cent by 1965. In West Pakistan, the 18,000 existing primary schools are inadeqaute to serve the needs of a large population spread over a wide area, and the Plan, therefore, provides for the opening of 15,200 new primary schools. In East Pakistan, where the present number of schools (26,300) is sufficient but their average quality poor, 13,300 primary schools will be provided with better buildings and equipment, regular supplies, and more qualified teachers. These efforts are expected to increase

primary school enrolment in West Pakistan by 1·2 million, raising the proportion of the age group attending school from 36 per cent to 56 per cent. In East Pakistan an increased enrolment of 1·3 million is anticipated, raising the percentage of the age group attending school from 48 to 63.

11. Two special problems will receive attention in the Second Plan period : first, the provision of adequate facilities for the education of girls, and second, a revision of the primary school curriculum to bring it into harmony with the needs and abilities of young children. Of the 4·7 million children presently attending primary schools, only 1·1 million are girls. Clearly, girls must be provided with much greater opportunities for primary education. This will be done both by admitting girls to more of the existing primary schools, and by ensuring that where separate facilities are required a much larger proportion is assigned to schools for girls. The effort to improve the content of education at the primary stage will be concentrated on the development of teaching materials that are related to the experiences and needs of the child in his own community, the introduction of activities designed to inculcate moral and civic virtues, and the improvement of teacher training programmes.

Secondary education

12. The First Plan visualized a distinct change in the secondary school programme through the introduction of courses in technical, commercial and agricultural subjects. Unfortunately, very little diversification took place during the Plan period, nor was much done to improve the general quality of the educational programme. On the quantitative side, however, the development of secondary education exceeded Plan estimates. Provision was made for the opening of 515 new secondary schools to care for an anticipated increase of 144,000 students. Actually 540 schools were opened and enrolment rose by 230,000 in the new and existing schools.

13. The Second Plan makes provision for the amalgamation of the intermediate classes with the secondary education system ; for the improvement of secondary schools by bringing their accommodation, equipment, libraries, and teaching up to a specified standard ; for the diversification of the programme in these institutions through the introduction of courses in technical, commercial and agricultural subjects ; for the introduction of guidance programmes so that students with special interests and aptitudes can be encouraged to take courses suitable to their talents ; for the development of residential schools offering instruction of the highest standard ; for additional facilities for the education of girls ; and for a programme of scholarships that will ensure the education of able but needy students.

14. In East Pakistan the number of existing secondary schools (3,100) is sufficient to absorb the young people seeking enrolment in them, but their qualitative standards must be raised appreciably. One thousand junior high

schools will be developed by up-grading primary and middle schools. Of the 1,600 senior high schools, 1,200 will be provided with qualified teachers, adequate buildings, and better laboratories and equipment. Craft courses will be introduced in 100 junior high schools, agriculture in 50 senior high schools, and home economics in a number of girls' high schools. Because it has a larger area and a smaller number of schools (2,900), West Pakistan will be provided with additional facilities. During the Plan period, 160 high schools will be opened, 103 middle schools up-graded to high schools, and 600 primary schools raised to middle schools. Two hundred of the 1,900 existing middle schools will be provided with additional accommodation and equipment. Government high schools will be improved by adding 800 qualified teachers, 650 class-rooms and 70 art rooms. Seventy science laboratories will be fitted with modern equipment. Courses in industrial arts, commerce and agriculture will be introduced in 250 middle schools and 45 high schools.

15. Although the general effort will be to bring a large number of the secondary schools up to a reasonable standard, the need to develop leaders and to provide special opportunities for the abler students demands that efforts be made to develop in each district a small number of schools staffed with particularly competent teachers and offering diversified programmes. At these institutions hostels will be constructed so that the benefits of this type of education can be enjoyed by the more talented students from rural areas. The Plan also envisages the establishment of two well-staffed, fully-equipped schools, one in each Province, on the pattern of the best residential schools in other countries. They will offer an educational programme of the highest standard and will also concentrate on character development and leadership training through an active and well disciplined corporate life. A new pre-cadet school will be set up in each Province.

16. The programme for secondary education proposed in the Plan will increase the enrolment at this level by 430,000 students, raising the percentage of the age group attending school from 12 in 1960 to 16 in 1965. The 200,000 additional pupils in East Pakistan will raise the percentage attending secondary schools from 9 to nearly 12, while the 230,000 new students in West Pakistan will raise the corresponding percentage from 17 to 20.

Teacher education

17. The role of the teacher is a pivotal one in raising the standards of education at all levels. Assuming even the finest facilities, the quality of education cannot rise above the competence, enthusiasm, imagination and dedication of the men and women who are responsible for the instructional programme. If educational institutions are to be improved appreciably, young people of real ability must be recruited to the teaching profession; they must be trained well and realistically in the techniques of imparting knowledge and skills to young minds; and their own knowledge and methods must be periodically refreshed and brought up to date. A special effort

must be made to develop their ingenuity so that they can adopt simple, inexpensive, and readily available materials to demonstrate principles and illustrate ideas. Above all they must be imbued with a sense of professional integrity and a realization that their responsibility for the development of the character of the students can be fulfilled best by a personal example of honesty, fairness, patriotism and hard work.

18. The First Plan proposed the raising of the basic qualifications of teachers particularly those of primary school teachers; the improvement of training institutions and their curricula; provision of facilities for the training of vocational teachers; and the establishment of in-service training programmes. During the Plan period only two new teacher training colleges and one primary training institute were opened. Some qualitative improvements were made in the existing institutions, and the entrance qualifications for the primary training institutes were raised, in general, to matriculation standard. Post-graduate courses in education were introduced at the teacher training colleges at Lahore, Karachi and Dacca, and a department of education was opened at the University of Rajshahi. Although the number of primary training institutes decreased from 97 to 75 due to the discontinuance of inefficient centres in East Pakistan, expansion of facilities at the remaining institutes maintained the annual out-put of primary teachers at 7,400. At the secondary level the out-put of trained teachers rose from 1,300 in 1955 to 1,800 in 1960, just short of the Plan target of 1,840.

19. The teacher requirements of the Second Plan are very large. It is estimated that 70 000 primary teachers must be added to the 127,000 now in service, and 8,625 undergraduate and 6,155 graduate secondary teachers added to the 50,000 now employed. At the secondary level, 425 graduate and 275 under-graduate teachers will need specialized knowledge of technical, commercial, agricultural or home economics subjects. The Plan provides for improved facilities at four training colleges, three junior training colleges and 28 of the 35 primary training institutes in East Pakistan. The training colleges in East Pakistan have not been operating at capacity because teaching has not attracted a sufficient number of trainees. The Plan proposes that this excess capacity be filled and that in addition, one training college, two junior training colleges, and 20 primary training institutes be opened. In West Pakistan, improvements will be effected in the training colleges at Lahore and Bahawalpur, at 24 of the 28 primary training institutes, and at 12 primary training units attached to high schools. Two new training colleges and 15 primary training institutes will be set up during the Plan period. In each Province provision has been made for the training of instructors for teaching in the primary training institutes.

20. Facilities for the training of teachers in polytechnics will be made available in the Polytechnics at Karachi, Dacca and Rawalpindi. One technical teacher training college will be established in West Pakistan for teachers of technical subjects in secondary schools. For teachers of agricultural subjects training centres will be opened at the Agricultural College at Dacca and Teachers Training College at Peshawar, while similar

centres for the training of commercial teachers will be established in East and West Pakistan. In West Pakistan, home economics teachers will be trained in the Colleges of Home Economics at Lahore and Karachi. Since no facilities for the teaching of home economics exist in East Pakistan, a college of home economics will be established at Dacca. Physical education teachers will continue to be trained in the colleges at Lahore and Dacca which will be provided with suitable accommodation and equipment to meet the expanding demand.

21. The need for basic research in education is particularly urgent. The problems which require study are numerous. They include critical observation and analysis of the learning process; controlled exprimentation in educational methods; study of sequential relationship between primary, secondary and higher educational stages; research in methods of measuring results within the educational process; and study of careers and performance in relation to educational attainment. Research is also called for in educational theory and psychology, child psychology and growth, curricular development, tests of aptitudes and intelligence, quality and content of text books, and in such practical fields as educational administration and the economics of education. The Plan proposes to accomplish these tasks by strengthening the departments of education at the universities of Sind, Peshawar, and Rajshahi, and through the establishment of institutes of education at the universities of Dacca and the Punjab. In addition, the staff and facilities of the Bureau of Education will be expanded and an institute of education research set up by the Government.

22. Teachers, by the nature of their profession, deal with a body of knowledge and skills that is constantly expanding and changing. It is imperative that their understanding of their subjects and of the best techniques for teaching them be constantly refreshed. The Plan makes provision for the in-service training of educational administrators, inspectors, headmasters and specialized teachers through the education extension centres now being developed at Dacca and Lahore. Other in-service programmes will be operated through the teacher training colleges and selected primary training institutes.

23. It is estimated that in East Pakistan the annual production of primary school teachers will increase from the present rate of 2,400 to 5,000 in 1965, and that during the same period the out-put of secondary school teachers will rise from 400 annually to 1,100. In West Pakistan the number of primary teachers trained each year will increase from 5,000 to 7,000 in 1965, while the number of secondary teachers trained annually will rise from 1,400 to 2,000. Approximately 55,000 primary teachers and 12,000 secondary school teachers will be trained during the Plan period. This represents about 80 per cent of the primary and secondary teachers that will be needed.

Technical education

24. With the marked expansion of development activity in recent years, there has been an increasing demand for scientists engineers and technicians

of all types. However, the production of this type of personnel has been seriously hindered by certain basic deficiencies in the educational programme. First, a clear distinction has not always been observed between the functions to be performed by different classes of technically trained people. Particularly, the role of the technical supervisor operating at a level between the specialist and the skilled artisan has not been fully recognized, nor has the kind of training needed to tproduce technicians at this level been developed properly. As a result of this failure, the talents of some engineers have been dissipated by assigning them duties which do not fully utilize their abilities and for which they have not been specifically trained. Engineers have been used as technicians at a lower level, thereby creating shortages at the higher levels while failing to provide efficient operators at the supervisory stage. Second, engineering education has not been of a high quality and, therefore, has not been able to produce imaginative and effective leaders in technical fields. The basic weakness in the entire programme of technical education has been the failure to perceive it as an integral part of the total educational effort. Technical training has been generally divorced from the rest of the educational system and has, therefore, failed to produce the well-rounded, adaptable type of individual that is needed. Technical training must be based on the understanding that the human personality cannot be segmented and that the development of the individual as a worker, as a citizen, and as a person must be a part of the same educational process.

25. The First Plan which laid stress upon technical education proposed the establishment of two engineering colleges, two polytechnics and one monotechnic. Of these, however, only the polytechnic institute at Rawalpindi was established during the Plan period. Little was spent on strengthening and up-grading existing engineering colleges and technical institutes. Under the Plan, provision was made to train an additional 350 engineers and 460 sub-engineers annually. Against this target, only an additional 125 engineers and 350 sub-engineers were trained during 1960.

26. The Second Plan represents an effort to remedy the fundamental weaknesses in technical education and to make up the deficiencies in the quality and quantity of technically trained people. To ensure that technical education will develop as an integral part of the educational system, provision has been made to strengthen the Directorate of Technical Education in West Pakistan and to establish a similar directorate in East Pakistan. At the professional level, the Plan emphasizes measures designed to improve the quality of the educational programme and to broaden its scope. Provision has been made to increase the duration of the engineering course to four years and for the general improvement of engineering colleges by making available additional staff, accommodation, laboratories, workshops and equipment. Two technical universities will be established, one each in Dacca and Lahore, to meet the pressing need for advanced study in engineering fields and to provide the proper atmosphere and facilities for research. Existing courses in mining and chemical engineering will be improved and courses will be introduced in fields such as metallurgy, mineralogy,

ceramics and petroleum engineering, which hold particular promise for accelerating economic development. Through the consolidation of existing engineering programmes and through the development of the two technical universities, it is anticipated that the annual out-put of engineers will be increased from the present rate of 400 to more than 700 annually by 1965.

27. At the supervisory level, the number of different technologies in which training is being offered at present is very limited and must be expanded. Diploma and certificate courses will be introduced in such fields as electrical installations, gas technology, paper technology, boat building and small craft design, navigation, printing trades technology, architectural draftsmanship, instrument making and repair and building trades, including masonry and brickwork, slating, tiling and concrete construction. To provide for these technologies and to step up the production of technicians and technical supervisors the existing polytechnics are to be expanded. The technical institutes at Lahore and Hyderabad will be upgraded to the polytechnic level and two new polytechnics established in East Pakistan at Chittagong and Rajshahi. The institutes in West Pakistan at Sialkot, Bahawalpur, Peshawar, Khairpur and Rasul, and the government technical schools in East Pakistan at Sylhet, Pabna, Bogra, Rangpur and Barisal will be strengthened. Improvement is also planned for the existing monotechnic institutes of textile technology and leather technology in East Pakistan, while new monotechnics will be established in East Pakistan for silk technology and in Karachi for graphic arts and for industrial design. Further improvements will be effected in East Pakistan by transferring the non-government technical schools at Mymensingh, Comilla, Khulna and Faridpur to government control, and the establishment of four additional technical schools and three new technical high schools.

Industrial training

28. Much of the training of artisans and craftsmen is the responsibility of private concerns; the best training for skilled personnel who do not require professional education is provided under supervision on the job. The First Plan proposed a scheme for promoting, regulating, and standardising industrial apprenticeship on a national basis. One national directorate at Karachi and two regional directorates at Lahore and Dacca were set up on modest scale. During the Plan period the strengthening of apprenticeship training will be undertaken by the proposed national training board. The productivity of skilled labour in the country remains low. The proposals made in the First Plan to tackle this problem were not implemented. The Second Plan provides for re-organizing and expanding the five existing technical training centres, and for opening four new ones at Chittagong, Khulna, Rajshahi, and Multan. It is expected that this programme will raise the output of the training centres from 1,250 in 1960 to 4,190 in 1965. The polytechnics, monotechnics, and technical institutes also offer courses for the training of artisans and craftsmen. There are a series of artisan and trade schools of varying grades and types, offering courses in

mechanics, metal work, electricity, and carpentry. Full information is not available at present about the number of technicians trained at such schools and in industrial establishments, but it is clear that the total will be well over 7,000 in 1965. The manpower surveys now being conducted by the Government will permit of better estimates being made of both output and requirements.

Commercial education

29. Improved agricultural production and expanding industrial activity will bring about a commensurate increase in transportation, shipping, banking and commercial enterprises of all types which in turn will require larger numbers of efficient well-trained clerical and administrative personnel. The proper training of clerical personnel has never been seriously undertaken; yet the need for people trained in office skills and with special training in banking, accountancy, insurance, transport, marketing, costing and similar subjects has always been great and is expanding rapidly. To meet this need the Plan proposes the establishment of twenty-one commercial institutes, ten each in East and West Pakistan and one in Karachi. These institutes will offer diploma courses which will combine technical and commercial training in a variety of fields with background studies in language and the social sciences. These institutes will also offer evening programmes for the in-service training of those employed in industrial and commercial concerns and in government offices. Several of these institutes will also establish courses for the training of teachers of commercial subjects in the schools.

Higher education

30. It is to the colleges, universities and professional institutions that the country must look for the development of leaders in all fields of national endeavour. The world in which the nation must achieve economic progress is highly competitive, and the leaders it produces must, therefore, be able to meet the competition. This means that those who graduate from universities in Pakistan should be comparable to those similarly trained in other advanced countries. The principal emphasis in higher education must be on quality, and efforts should be concentrated on those measures which will produce excellence in the educational programme and ensure competence in its products.

31. The First Plan envisaged the evolution of a unified system of higher education through strengthening of the then existing institutions, separation of the intermediate from degree classes, transference of professional colleges to the control of the universities, reorientation of the functions of the universities towards teaching and research rather than examining and affiliating, and effective establishment of the role of the universities in providing guidance and leadership. The Second Plan provides for a number of measures through which these basic reforms can be achieved. Particular emphasis has been placed upon the improvement of existing colleges and universities. In East Pakistan, five government and twenty-eight non-government colleges will be

strengthened by providing them with additional laboratories for science instruction, libraries and books, equipment, study rooms for teachers, and additional staff. In West Pakistan, similar improvements will be effected both in government and non-government colleges.

32. To develop a high standard of instruction and to encourage and facilitate research at the universities, the Plan envisages the construction of libraries, laboratories, study rooms for teachers, and other essential buildings at the universities. The University of Dacca will start moving to a more appropriate site during the Plan period and provision has been made for this shift. The affiliating and examining functions of the universities will be curtailed both through the consolidation of colleges and through the establishment of new universities. The Government College, Chittagong will be developed into a university, and another university will be set up in West Pakistan. These will be general universities and will be in addition to the four technical universities to be set up for higher agriculture and engineering studies. The Institute of Public and Business Administration in Karachi will be expanded so that it can better serve the needs of the entire country until similar institutes can be established in the Provinces. An institute of modern languages will be set up to undertake teaching and research in important modern languages.

University research

33. Research is an essential function of the universities. At the higher educational level, research is as important as teaching. It vitalizes the instruction process and stimulates teaching staffs to keep abreast of technical advances in their fields. The universities have a special duty in the development of fundamental research in scientific fields which are basic to the country's progress and welfare, and in the thorough training of qualified research workers. Full-time research professorships in fields of key importance will be established in the principal universities and technical institutions. Effectively planned university research programmes should be subject to some degree of coordination in relation to the programmes and activities of other agencies. The broad research requirements of the country, and necessary improvements in research organization, are considered more specifically elsewhere in the Plan.

Scholarships

34. The nation must be assured that students with exceptional talent are identified at an early age and receive the training necessary for them to make the maximum contribution to the country's development. It is imperative that those with exceptional talent should not be denied opportunities for further education because of their inability to pay for it. The Plan provides, therefore, for a comprehensive system of scholarships to be awarded on the basis of merit from Class VIII onward. The estimated cost of this programme during the Plan period is Rs. 46·5 million. It is expected that similar scholarships will be made available by local authorities for Classes VI through VIII until this stage is made free and compulsory.

Islamic studies

35. The Plan emphasizes the need for promoting Islamic studies and research in the universities and in institutes especially established for this purpose. Islamic studies require a clearer direction and need to be brought closer to life. Religion has been the most vital civilising force in the history of mankind; and Islam has a special significance for the young State of Pakistan. If the true spirit of Islam is to be re-discovered and re-captured, researches will have to be conducted on the basic principles of Islam, on the social and cultural institutions that have been developed over centuries to express and realise these principles in actual life, and on the impact Islam has made on the human mind and progress of civilisation. Islam, as a body of thought, can fully meet the challenge of the times. Its fundamental values, however, need to be related to an age of science and technology, and applied to solution of present-day problems. The Plan provides further facilities for the existing departments of Islamic studies in the universities, both for instruction and research. In addition, it envisages the establishment of an institute of Islamic studies supported by comprehensive libraries, research scholarships and facilities for publication of research studies. The tasks of the institute will be :

(*i*) to define Islam in terms of its fundamentals, particularly its basic concepts of universal brotherhood, tolerance and social justice;

(*ii*) to interpret the teachings of Islam so as to bring out their dynamic character in the context of the intellectual and scientific progress of the modern world;

(*iii*) to carry out research in the contribution of Islam to human thought;

(*iv*) to organize and encourage research in Islamic history, philosophy, law and jurisprudence.

The proposed institute will undertake studies in scientific interpretation of Islam in the context of the modern age. It will also coordinate research in the field of Islamic studies and provide guidance to the other institutions in the country which have similar objectives.

National languages

36. It is essential to develop Urdu and Bengali, the official languages of Pakistan, and to remove their deficiencies in scientific and technical literature through translations and original publications. To achieve this purpose, the Plan proposes the establishment of two boards: one for Urdu, the other for Bengali. A board to standardize the terminology in the various branches of scientific knowledge will also be established. The Pashto Academy, the Sindhi Adabi Board and the Panjabi Adabi Academy will continue to receive support.

Promotion of art, culture and sports

37. As literary, artistic, and cultural activities did not receive adequate financial support in the past and therefore languished, the Plan proposes to promote and accelerate these activities by making liberal financial provisions for them. In East Pakistan, the programme includes an institute of fine arts, a museum, two public libraries at Chittagong and Khulna, and a number of mobile lending libraries. In addition, the activities of the existing Government Institute of Art and the Central Public Library at Dacca will be expanded. In West Pakistan, the Plan provides for the establishment of libraries, museums, including science museums, and three cultural centres, in addition to the existing centre at Shah Abdul Latifabad.

38. Since Independence some important excavations have been made in Pakistan revealing relics of ancient cultures and thus providing valuable historical links which might otherwise have been lost. In view of the cultural importance of archaeological finds and the educational value of museums, the Plan proposes to expand the programmes of the Central Government Directorate of Archaeology and Museums. Similarly, because of the great educational effectiveness of libraries, the Plan envisages the expansion of the activities of the Central Government Directorate of Archives and Libraries. Assistance will be provided to artists and writers, and literary and artistic works subsidized, to provide an incentive to the advancement of art and literature. Stimulus for the cultivation of arts and literature should come from the private sector. Endowments to support museums, galleries, art centres, exhibition halls and libraries should be established. Particularly in urban areas, organizations supported by private philanthropy can undertake a wide range of activities in this direction. As an effective incentive for private effort in this sphere, it is proposed that the existing exemptions from taxation for funds assigned to approved educational and artistic purposes and institutions should be further liberalized. It is necessary to establish a national book trust for undertaking the large scale publication of books needed for the scholar as well as the general reader. Import of books should be freed from restrictions, although a check on the import of cheap trashy publications should be exercised. To help in raising the standard of sports, which is mainly a field for private effort, the Plan recommends the provision of better playing conditions and coaching facilities, and for the construction of sports stadia.

Military training and scouting

39. The value of military training as a means of developing leadership, character and a sense of devotion to a cause is universally recognized. During the Plan period a national cadet corps will be established with an initial strength of 20,000 cadets, and will be gradually expanded. The corps will have separate wings for the Army, Navy and Air Force and each wing will be divided into three divisions, namely a senior division, a junior division and a girls' division. The existing Junior Cadet Corps and the University

Officers Training Corps will be absorbed into the Army wing. Provision is also made in the Plan to support other character-building activities such as the Boy Scout and Girl Guide movements.

Education of handicapped children

40. The education of handicapped children can best be undertaken by the medical and educational services of private social welfare agencies. The Plan provides funds under the social service programme for the development of institutions for the deaf and dumb, for the blind, and for mentally-retarded children. The rehabilitation of handicapped children through various services and sheltered workshops is also proposed under the social service programme.

Adult education

41. The aim of adult education is to help the development of the individual so that he may be able to make his maximum contribution to the welfare of the society in which he lives. With a high percentage of illiteracy and with nearly 60 per cent of children of the school going age out of school, the development of a literate population must remain the primary objective of adult education in Pakistan. Past experiments in the literacy drive show that to be successful the programme to eradicate illiteracy must be based on economic motivation, carried out by teachers specially trained in literacy teaching, and provided with sufficiently suitable literacy material for teaching and for the use of new literates. The major effort in eradicating illiteracy will continue to be made through the present programme in which institutions of Basic Democracies and Village AID provide the organizational facilities, and the educational system undertakes the training of adult literacy teachers and the production of teaching aids and reading material.

Publicity for national development

42. The Plan presupposes very active public cooperation and participation in the gigantic task of national development. Support and enthusiasm of the people will be best mobilized if they are thoroughly informed of the problems and possibilities: what needs to be done and what the Plan proposes to do; what is to be undertaken by whom, and how it is to be achieved; above all, what national development requires of the individual and what benefits it will bring to him. Through the expansion and re-equipment of the media of field publicity, radio, film and the press, the Centre and the Provinces should launch concerted drives to inform the people about the scope and requirements of national development in general and of the Plan in particular. A provision of Rs. 20·1 million for development expenditure on publicity services is made in the Plan.

TABLE 2

First and Second Plan allocations to education and training (including both development and recurring expenditure)

(Million Rupees)

	First Plan	Second Plan
Primary	105	328
Secondary	155	290
Teacher training	38	50
Technical	50	182
Colleges	68	55
Universities	87	135
Social and cultural, scientific and industrial research, technical training centres, scholarships and other schemes	77	283
Total ...	580	1,323 (*a*)

(*a*) This does not include proposed expenditure of Rs. 75 million on publicity services.

TABLE 3

Proposed public expenditure on education and training by executing authorities, 1960-61 to 1964-65

(Million Rupees)

	Development expenditure				Increased recurring expenditure			
	East Pakistan	West Pakistan	Centre	Total	East Pakistan	West Pakistan	Centre	Total
Primary education ...	70·0	78·0	6·0	154·0	61·2	108·0	4·6	173·8
Secondary education	78·7	96·4	10·3	185·4	68·5	32·6	3·7	104·8
Teacher education	16·6	17·4	·03	34·0	5·6	9·5	·5	15·6
Technical education (including engineering) ...	61·7	60·2	7·2	129·1	23·7	25·6	3·3	52·6
Colleges ...	22·0	17·0	4·0	43·0	8·9	2·5	1·0	12·4
Universities ...	62·7	47·5	14·5	124·7	4·7	5·5	·5	10·7
Internal scholarships	15·0	15·0	16·5	46·5	...	...	...	...
Foreign training ...	3·0	3·2	7·8	14·0	...	...	...	...
National cadet corps and national service ...	1·4	1·4	3·0	5·8	11·5	11·5	6·8	29·8
Social and cultural activities ...	12·0	5·4	15·9	33·3	1·5	4·1	10·8	16·4

	Development expenditure				Increased recurring expenditure			
	East Pakistan	West Pakistan	Centre	Total	East Pakistan	West Pakistan	Centre	Total
Other schemes of the Ministry of Education ...	...	...	7·0	7·0	...	...	11·0	11·0
Expansion of the Ministry of Education ...	...	...	...	...	...	...	1·0	1·0
Direction and inspection ...	...	...	...	...	4·0	8·1	·4	12·5
Special Areas and Frontier Regions	...	7·5	1·2	8·7	...	4·2	3·1	7·2
Scientific and industrial research ...	...	...	65·0	65·0	...	...	...	...
Technical training centre and apprenticeship training ...	9·8	8·3	1·7	19·8	2·0	1·7	1·0	4·7
Total ...	352·9	357·3	160·1	870·3	191·6	213·3	47·7	452·6
Publicity schemes ...	5·0	5·0	10·1	20·1	5·0	10·0	40·0	55·0
Grand total ...	357·9	362·3	170·2	890·4	196·6	223·3	87·7	507·6

TABLE 4

Expected private development expenditure on education and training, 1960-61 to 1964-65

(Million Rupees)

Sector	East Pakistan	West Pakistan	Centre	Total
Secondary education	17·0	27·0	3·0	47·0
Colleges	1·0	5·0	4·0	10·0
Universities	1·0	5·0	4·0	10·0
Social and cultural activities ...	1·0	2·5	1·0	4·5
Industrial and commercial training ...	8·9	13·1	6·5	28·5
Total ...	28·9	52·6	18·5	100·0

TABLE 5

Proposed public development expenditure on training and research under sectors other than education and training, 1960-61 to 1964-65

(Million Rupees)

Sector	East Pakistan	West Pakistan	Centre	Total
Agriculture :				
Field crops	23·0	41·0	...	64·0
Fisheries	2·0	0·4	6·3	8·7
Animal husbandry	6·1	2·4	11·1	19·6
Forestry	3·3	3·4	15·3	22·0
Research under Jute and Cotton Committees and Council of Agricultural Research	...	...	9·0	9·0
Village AID	14·2	10·1	21·0	45·3
Water and power (including atomic energy)	15·4	4·0	48·0	67·4
Industries (including fuels and minerals)	12·0	11·5	1·7	25·2
Transport	4·0	...	2·0	6·0
Housing and settlements	6·1	6·2	...	12·3
Health	31·6	20·1	45·2	96·9
Social service	1·7	0·1	1·0	2·8
Total ...	119·4	99·2	160·6	379·2

[illegible]

Proposed private development expenditure on education and training 1960-61 to 1964-65

(Million Rupees)

Sector	East Pakistan	West Pakistan	Centre
Secondary education	17·0	37·0	3·0
Colleges	4·0	5·0	[illegible]
Universities	3·0	5·0	4·0
Social and cultural activities	1·6	2·5	1·0
Industrial and commercial training	3·4	[illegible]	6·5
Total	29·0	52·6	18·5

CHAPTER 15

HEALTH

DISEASE and injury today take a severe toll of life, and result in costly losses of labour, time and efficiency. They lower the vitality and weaken the fibre of human beings. Adequate medical and health services are essential; they contribute richly towards conserving and developing the energies of the people for nation-building tasks. In the field of public health, the country has a long way to go before the final objectives are even approached. But realism does not permit unduly ambitious plans to be entertained. The greatest single restraining factor is the considerable gap that still exists in the availability of appropriately qualified medical and para-medical man-power, which is essential for manning the health services effectively. This is especially so with regard to teachers and instructors of various grades. Lack of an adequate administrative system both at the Centre and in the Provinces, and inadequtae terms and conditions of service, which fail to attract medical personnel of appropriate calibre, are other problems which need solution.

2. Standards of health in the Indo-Pakistan sub-continent in former days were inevitably low. Inadequate nutrition, insanitary conditions, insufficient medical facilities, all contributed to the prevalence of ill-health, epidemics, and a high rate of mortality. Traditionally, disease was attributed to destiny, and even the educated classes were resigned in a state of helplessness to the conditions which existed. The resources of the country were small, and ill-health generally was considered beyond remedy. Death rates were about double, and infant mortality rates were about five times, those of developed countries. Medical facilities were grossly inadequate in relation to the population, and the resources that could be devoted to health were negligible.

3. The First Plan proposed anti-malaria and BCG vaccination programmes ; increase in the number of urban and rural dispensaries ; increase in the number of hospital beds for the treatment of general and specific diseases ; provision of water supply and drainage ; reorganization of departments of health-education and vital statistics ; and facilities for the care of mothers and children. Only about 40 per cent of the total allocation for health measures was utilized. Nevertheless, it is to the credit of the health organizations that immediate dangers were kept reasonably under control, and a fair measure of progress was achieved. The number of medical colleges rose from six in 1955 to nine in 1959, against the target of eight by 1960. The number of nurses training institutes increased from 14 in 1955 to 18 in 1959, against the target of 16. The number of nurses increased from 1,414 in 1955 to 2,000 in 1959, against the target of 2,400. The number of government and registered doctors increased from 6,000 in 1955 to 9,200 in 1959, against the target of 9,000. The number of hospital beds increased from 23,000

in 1955 to 28,000 in 1959, against the target of 32,000. The number of maternity centres increased from 200 in 1955 to 375 in 1959, against the target of 256. Good progress was made in setting up new organizations and facilities. Imports of drugs and medicines were liberalized. A Bureau of Laboratories for the production of vaccine and sera, and a BCG laboratory were set up. The country is now producing all the vaccine and sera required, as well as sufficient BCG vaccine for the expanded programme. The establishment of a Central Malaria Institute and malaria control organizations in both Provinces facilitated the expansion of this work. In the limited areas that were sprayed by DDT, the spleen-index, which shows the extent of malarial infection, and the parasitic index fell remarkably.

4. How much progress has been made in reducing disease and lowering the death rate is difficult to measure. The statistics are not reliable enough to permit any firm conclusions, but they do suggest that mortality rates have been declining since Independence, while birth rates show little or no change. Despite a steady improvement in most fields, and spectacular improvement in some, the country still faces tremendous difficulties, and even minimum health standards are far from assured. An inadequate diet, especially in composition, makes millions susceptible to disease. In cities and towns, overcrowding contributes to a heavy incidence of tuberculosis. Everywhere lack of even rudimentary knowledge of causes of disease and methods of prevention multiplies difficulties. The problems of ill-health and malnutrition can only be solved when the general economic and social conditions improve substantially and education is more widespread, but there is much that can be done to provide medical services and relief even under present conditions if the inadequacies in the supply of trained health personnel can be rectified.

5. The health standards of more developed countries are unattainable in the near future. How far the country lags is indicated by a few comparisons—one doctor per 9,600 persons against one per 750 in the United States; one nurse per 44,500 persons against one per 300 in the United Kingdom; one hospital bed per 3,000 persons against one per 100 in the United States. Infectious and communicable diseases like malaria, tuberculosis, cholera, typhoid, dysentery, diarrhoea, and small-pox still take a heavy toll of life, whereas they have ceased to be a serious danger in advanced countries. Five or six times as many mothers die in pregnancy and childbirth as in more advanced countries. The position regarding infant mortality is similar. The medical and health care available to the vast rural population bears no relationship to conditions in advanced countries. The growth of population has added to difficulties, with its repercussions on housing, clothing and food, and on the provision of measures for the protection of health. No programme of social development can ignore the implications of the population problem and the need for a continuous adjustment between population and available resources.

Major objectives of the Plan

6. It is reasonable to hope that the development programme proposed in the Plan will raise the standard of living and establish higher levels of sanitation, nutrition, housing, education, and health knowledge; and with these improvements will come better health. But improved health should be more than a by-product of the development plan. It is so vital to the country's welfare that there must be a strong and vigorous programme directed to this end. Because resources and technical personnel are limited, preventive measures should have the first priority. The Plan therefore assigns approximately 60 per cent of the allocation in the health sector to preventive services, which should raise health standards at relatively low cost. Malaria and small-pox eradication, tuberculosis control, maternity and child welfare, and health education fall in this category. By comparison, curative measures require much larger resources. They meet, however, an essential need, and though priority must inevitably go to prevention, it is necessary on the curative side to complete the schemes now under way, to maintain and improve services and facilities which are in danger of deterioration, and to fill urgent needs in fields previously neglected. About 40 per cent of the Plan allocation for health is earmarked for the curative services.

7. Curative and preventive services depend on availability of trained personnel. The policy will be to train the necessary numbers as fast as possible, establishing new training institutions and improving existing ones to meet the deficiencies. Post-graduate medical institutions will be required to offer specialist courses and award post-graduate degrees or diplomas of a high standard. Medical research, at present almost completely neglected, will be stimulated and the necessary facilities provided. Research will also be conducted to determine the value of indigenous herbs or pharmacoepeal preparations in use by the *unani* and *ayurvedic* systems.

8. A Medical Reforms Commission was set up by the Government in 1960 to suggest improvements in the administration of health and medical services and to review the existing system of medical education, para-medical training, and medical research. The Plan proposals will be coordinated with the recommendations of the Commission when these become available. Emphasis will be laid on the development of rural health. A number of rural health centres, adequately staffed and equipped, will be set up in both the Provinces during the Plan period, to provide preventive and curative facilities. The nutrition of the people will be investigated and essential deficiencies determined. Efforts will be made to ensure that the country becomes self-sufficient in its basic needs of pharmaceuticals and antibiotics. Because of the death and suffering that malaria causes, and its many insidious effects on the economic and social life of the people, a vigorous programme of malaria eradication will be initiated during the Plan period. The Plan provides for the protection of the whole of the susceptible population groups by BCG vaccination against tuberculosis.

9. A sum of Rs. 350 million has been allocated for the health sector programme; this covers capital expenditure on buildings and equipment, and recurring expenditure on malaria eradication, BCG vaccination, family planning, training and research schemes. The allocation includes Rs. 151·5 million for East Pakistan, Rs. 128·5 million for West Pakistan, and Rs. 70 million for the Centre. Included in the allocation for the Centre are schemes for the Special and Frontier regions totalling about Rs. 11 million.

Family planning

10. Health measures cut both ways in terms of welfare. While they improve the health of the people they also increase the size of the population by curtailment of the death rate. Unless the fertility rate declines simultaneously, a speedy fall in the mortality rate will accelerate population growth. Rapid population growth is bound to increase the burden of the young on the community, curtail investment resources in favour of current consumption, raise the net cost of supporting the population, and create serious obstacles to social and economic development. If therefore any measure of prosperity is to be gained from the developmental effort, it is essential that family planning receive high priority. The First Plan contained a small provision for family planning, but practically nothing was done, except some pilot work by the family planning associations. Since a declining trend in fertility must be sought over a long period, the Second Plan health programme is primarily designed to influence social attitudes and practices in favour of family planning. It also seeks to provide the necessary medical and other facilities. Clinics will be established in all general hospitals, dispensaries and maternity centres. Provision is also made for educational and other materials, training programmes, and research. Publicity and education programmes will be organized through all available media, with the assistance of voluntary organizations, Village AID and community development units. Arrangements will be made for training of doctors, nurses, health visitors, midwives and medical administrators in family planning methods. Research will be initiated on reproductive behaviour, on factors which motivate parents to have large or small families, and on the acceptability and effectiveness of different methods of birth limitation. The Plan provides Rs. 30·5 million for family planning.

Health facilities in the rural areas

11. More than 85 per cent of the population lives in villages. But the extent of medical facilities available in rural areas is meagre, the number of doctors, hospitals, and dispensaries is woefully insufficient, and the quality of service leaves much to be desired. The Plan proposes to set up rural health centres to provide facilities for medical treatment, maternity and child welfare, family planning, environmental sanitation, preventive control of other communicable and infectious diseases, health education, and the compilation of vital statistics. Each rural health centre, consisting of a primary unit and three sub-centres, will cover a population of about 50,000; three such centres will be located in each Village AID development area. The

staff at each primary unit will include a male and a female doctor, a health visitor, health and laboratory technicians, and other auxiliary staff; at the sub-centres a multipurpose health technician and a midwife will be stationed. A dispensary and a four-bed ward will be attached to each primary centre from which patients will be sent on if necessary to the *tehsil*, sub-divisional or district hospitals. The rural health centres are a new venture in the country. The staff, including those who work at the *tehsil*, sub-divisional, district and provincial levels, will have to be oriented to new ideas, concepts, procedures, and techniques. For this purpose a number of training centres will be opened in both Provinces. In addition, special institutes will be established in each Province for training health, laboratory and X-ray technicians, and other staff for the health centres. Twenty primary centres will be established during 1960 as a pilot project with the assistance of the ICA and UNICEF. The number will be increased progressively during the Plan period to 300 centres, 150 in each Province, of which 30 will be new centres and 120 will be upgraded existing dispensaries and maternity centres. A provision of Rs. 42·21 million has been made in the Plan for this purpose: Rs. 20·20 million for East Pakistan, and Rs. 22·01 million for West Pakistan.

Malaria

12. Malaria is responsible for nearly 100,000 deaths a year, and widespread debility. Since Independence, malaria control measures have been carried out by occasional DDT sprayings. Due to lack of funds and shortage of staff these measures were applied in a haphazard way. It now appears that the malaria-bearing mosquitoes are developing resistance to DDT. The anti-malaria programme needs to be intensified so that this disease can be eliminated before the mosquitoes become immune to this insecticide. A country-wide malaria eradication programme will start with the assistance of WHO during the Plan period. Arrangements have been made to train the required staff in East Pakistan at the Malaria Institute at Dacca, and in West Pakistan at the Institute of Hygiene and Preventive Medicine at Lahore. A sum of Rs. 56 million has been provided in the Plan for this purpose: Rs. 30 million for East Pakistan, Rs. 25 million for West Pakistan and about Rs. 1 million for the Centre.

Tuberculosis

13 Tuberculosis poses another major public health problem, with a mortality of about 150,000 a year. The ultimate solution is dependent upon raising the standard of living of the people, adequate nutrition, improvement in housing and environmental sanitation, provision of adequate preventive and curative facilities and above all, efforts to remove ignorance about the disease. The First Plan provided for tuberculosis hospitals and a BCG vaccination programme. The number of beds in tuberculosis hospitals increased from 1,632 in 1955 to 2,507 in 1959. Some 30 million persons have been tested for tuberculosis, and 11 million have been vaccinated. In the Second Plan, stress will be laid on the protection of all susceptible population groups by further BCG vaccination. Emphasis will also be laid on

domiciliary treatment. It is proposed to establish 50 new tuberculosis clinics of which 30 will be in East Pakistan and 20 in West Pakistan. A national institute of tuberculosis at Karachi, and training centres at Dacca and Lahore, will be established for research and for training of technical staff. The number of beds in the tuberculosis hospitals at Dacca and Karachi will be increased by 300. In addition, two new hospitals of 100 beds each will be established at Sylhet and Jessore in East Pakistan. A sum of Rs. 28·4 million is included for the tuberculosis programme : Rs. 14·8 million for East Pakistan, Rs. 4·5 for West Pakistan and Rs. 9·1 million for the Centre.

Small-pox

14. Small-pox causes thousands of deaths in the country annually, predominantly in East Pakistan, where the disease is endemic. The incidence of this disease among infants and children is high. Small-pox is the most controllable of the infectious diseases if vaccinations are performed at regular intervals, but because of lack of supervision and trained staff only about 30 per cent of the population have been vaccinated ; in many cases vaccination is not successful because of loss of potency of the vaccine due to unsatisfactory transport and storage. During the Plan period vaccination services will be strengthened in order to move as far and as fast as possible towards the eradication of this scourge.

Leprosy

15. Leprosy is a disease which incapacitates the sufferer and depresses other people, although it is not, in most cases, as infectious as is generally believed. With the introduction of the new sulphone drugs a high percentage of cases can be cured. The extent of the disease is not fully known, but rough estimates indicate about 100,000 cases, of which the bulk are in East Pakistan. Probably only about one-quarter of these cases are infectious. The institutional provision available in the country for isolating leprosy cases is only 700 beds, of which 300 are in East Pakistan, 260 in West Pakistan, and 140 in Karachi. Eleven leprosy clinics (one in Karachi and five in each Province) will be established in the Plan period for the treatment of cases that do not need segregation. Leprosaria for the segregation and treatment of infectious cases will be built : two in East Pakistan with 500 beds each, one in West Pakistan with 500 beds, and one in Karachi with 300 beds.

Trachoma

16. Trachoma is a highly infectious disease and the main cause of blindness. In the Plan period a survey of the disease will be undertaken with the assistance of international organizations, and a treatment campaign carried out.

Mental health

17. The physical and mental health of an individual are inter-related, and no health programme can be considered complete without provision for the treatment of mental ill-health. Though the exact incidence of mental

disease in the country is not known, there is sufficient evidence to show that psychiatric morbidity is fairly high; the incidence may be in the neighbourhood of 160,000 cases. There are three mental hospitals at Hyderabad, Lahore, and Peshawar in West Pakistan, and one mental hospital in Pabna in East Pakistan. The facilities for the treatment of mental cases are, therefore, clearly insufficient. In the Plan, a provision of about Rs. 13·07 million is made for extension of existing hospitals, establishment of two new mental hospitals (one at Comilla in East Pakistan, and one in Mansera in West Pakistan), and the installation of mental clinics linked with selected teaching hospitals.

Nutrition

18. Nutrition is perhaps the most important factor in the maintenance of health and resistance to disease. Provision is made in the Plan for extending the nutrition and food laboratories at Dacca and Lahore, and for the establishment of three new ones at suitable locations. The work will include studies of the composition of local foods, nutritional surveys, investigation of the incidence of malnutrition and deficiency diseases, determination of the extent of food adulteration, and dissemination of information about nutrition. A provision of Rs. 3·0 million is made for the purpose in the Plan. A central nutrition research laboratory, which will form part of the National Public Health Research Institute, will be established in Islamabad at a cost of Rs. 2·5 million.

Health education

19. Health programmes can be effective only with the understanding, support, and active participation of the people. In a country where the population is largely illiterate, ignorant, and apathetic, health education must have an important place in development plans. During the First Plan period, Bureaus of Health Education were established in the Directorate-General of Health at the Centre, and in the Directorate of Health Services in East Pakistan. These Bureaus demonstrate simple principles of health and hygiene through radio, press, films, pamphlets, and posters. Under the Second Plan, the Bureau of Health Education at the Centre will be converted into an institute for training people in health education techniques, and a bureau of health education will be established in the Directorate of Health Services in West Pakistan. A sum of Rs. 1·2 million has been provided for this purpose.

School health

20. School children must be protected through a well-organized school health service, which will provide for regular medical examinations and treatment of minor ailments in special clinics. A sum of Rs. 2·75 million has been provided in the Plan for establishing 37 experimental school health clinics: 20 in West Pakistan, 12 in East Pakistan, and 5 in Karachi.

Health statistics

21. Preventive and curative work can be organized on sound lines only on the basis of accurate knowledge of morbidity and mortality statistics, which is at present lacking. A satisfactory statistical section now exists only in the West Pakistan Directorate of Health. Provision is made in the Plan for setting up a statistical section in the Health Directorate of East Pakistan, and for improving the existing statistical sections in the Central Directorate-General of Health, and the West Pakistan Health Directorate.

Medical education

22. No effective health programme can be carried out without adequate numbers of trained personnel. Training will be given special attention during the Plan period. This requires the establishment of new training institutes and improvement of existing establishments. The number of medical colleges in the country is sufficient and should not be increased, but the existing colleges need consolidation and improvement through augmentation of qualified staff and of equipment. Rs. 15 million is provided for the improvement of the Dacca, Chittagong and Rajshahi Medical Colleges, and for starting a new dental college in Dacca. In West Pakistan, a sum of Rs. 4·3 million has been provided for improving the King Edward Medical College, Nishtar and Liaquat Medical Colleges, and also for improving the Dental College at Lahore. A provision of Rs. 1·8 million has been made for improving the Dow Medical College in Karachi. Post-graduate medical institutions will be established during the Plan period to conduct specialized courses, award post-graduate degrees or diplomas, and provide specialist treatment to patients in associated hospitals. The units for training in such subjects as basic medical sciences, which already exist in the Jinnah Central Hospital at Karachi, will be made a post-graduate medical institute, at a cost of Rs. 5 million. Similar facilities available at Lahore will be developed for post-graduate training. Provision of Rs. 5 million is also made for a post-graduate institute of tropical medicine at Dacca. The Institute of Public Health at Dacca, the Institute of Radiology at Lahore, and the Institute of Hygiene and Preventive Medicine at Lahore will be strengthened.

23. The training of nurses and other para-medical personnel will be systematized and extended. The Plan provides for five training institutes for health technicians—three in East Pakistan and two in West Pakistan at a cost of Rs. 4 million. Provision of Rs. 4·5 million is made for three institutes for training lady health visitors and midwives at Barisal, Pabna, and Mymensingh in East Pakistan, and Rs. 2·5 million for improving the two existing institutes in West Pakistan, and for opening a new one in Quetta. Similarly, three additional schools for nursing training will be provided in East Pakistan, at a cost of Rs. 5·0 million, to be located at Mymensingh, Barisal, and Sylhet. No additional nursing institutes are proposed for West Pakistan, but the scope of the existing schools will be expanded. A sum of Rs. 2 million has been provided for establishing one nursing school in Islamabad. This programme will be supplemented by training of nursing auxiliaries where necessary ; a pilot project is already under way in

Karachi. Provision of Rs. 5 million is also made for extended training of doctors, nurses, and para-medical personnel abroad : Rs. 2·0 million for East Pakistan, Rs. 1 million for West Pakistan, and Rs. 2 million for the Centre. In all, some 200 doctors, 120 nurses, and 60 technicians will be trained abroad during the Plan period.

Medical research

24. A Public Health Research Institute will be established in the Federal Capital at a cost of Rs. 7·5 million. This Institute will engage in research on public health, nutrition, pathology, malariology, and drugs ; research will also be conducted on the value of indigenous herbs and pharmacoepeal preparations used in *unani*, *ayurvedic* and homoeopathic practice. A provision of Rs. 1 million is made for this purpose. Cholera research will be undertaken at the Institute of Public Health at Dacca, under the aegis of SEATO.

Hospitals

25. The Plan provides for an increase in the number of hospital beds by about 8,000. This total includes a new 500-bed hospital to provide clinical support to the proposed public health research Institute in Islamabad; the addition of some 2,000 beds in the general hospitals (850 beds in East Pakistan, 750 in West Pakistan, and 400 in Karachi); an increase of 500 beds in tuberculosis hospitals (300 in East Pakistan and 200 in Karachi) ; of 460 mental hospital beds (260 in East Pakistan and 200 in West Pakistan), and of 200 beds for infectious diseases in East Pakistan. The district and sub-divisional hospitals in East Pakistan will receive modern equipment including X-Ray installations, and the teaching hospitals will be provided with physiotherapy, facilities for the treatment of venereal diseases, and deep X-ray and isotope centres. In West Pakistan provision has been made for the improvement and expansion of 10 *tehsil* and 14 district hospitals, the improvement and expansion of the existing urban headquarters hospitals, the establishment of physiotherapy centres in teaching hospitals, and the improvement of the existing mental hospitals at Hyderabad and Lahore. To meet the cost of increase of beds in the general hospitals the Plan provides a sum of Rs. 68·2 million—Rs. 14·2 million for East Pakistan, Rs. 30 million for West Pakistan and Rs. 24 million for the Centre. Provision for specialized institutions like tuberculosis and mental hospitals is shown separately under those heads.

Mobile dispensaries

26. For providing treatment to patients in outlying areas 29 additional mobile dispensaries—20 in West Pakistan and 9 in East Pakistan—costing Rs. 1·3 million will be put into service. Provision has also been made for developing motor-launch dispensaries for isolated areas in East Pakistan.

Medical stores

27. A sum of Rs. 4·7 million has been provided for the improvement of medical stores depots at Chittagong, Dacca, Rajshahi, Karachi, and Lahore, and for the establishment of two sub-depots at Chittagong and Rajshahi.

Special and Frontier regions

28. The Plan includes a health programme at a cost of Rs. 11·3 million for the Special and Frontier Regions. The existing dispensaries and hospitals will be improved and extended. Several new hospitals and dispensaries will be established ; additional beds will be provided for the treatment of tuberculosis and leprosy.

29. The total estimated development expenditure on the health programme in the public sector is summarized in Table 1.

TABLE 1

Development expenditure in the public sector for health,
1960-61 *to* 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Malaria eradication	30·00	25·00	0·98	55·98
TB hospitals, clinics and sanatoria ...	10·80	0·50	8·52	19·82
BCG	4·00	4·00	0·60	8·60
Medical colleges	15·00	4·29	1·80	21·09
Hospitals	20·77	35·70	24·79	81·26
Dispensaries, rural health centres and public health administration ...	25·40	26·13	1·04	52·57
Infectious diseases hospitals and control of infectious diseases	11·05	4·17	1·38	16·60
Medical stores	0·90	...	3·80	4·70
Higher training for doctors and research	3·00	1·00	20·50	24·50
Family planning	15·00	15·00	0·50	30·50
Maternity and child welfare centres ...	2·50	...	0·11	2·61
Training of nurses and others ...	11·00	8·37	2·50	21·87
Nutrition	0·50	2·50	2·50	5·50
Health education, school health, and vital statistics	1·57	1·89	0·94	4·40
Total ...	151·49	128·55	69·96	350·00

Note.—Table 1 includes capital expenditure on buildings and equipment, and recurring expenditure on family planning, malaria eradication, BCG, research and training. The Table does not include recurring expenditure on other items, now treated under the Plan as non-development expenditure ; this totals Rs. 183·5 million : Rs. 65·23 million for East Pakistan, Rs. 99·08 million for West Pakistan, and Rs. 19·27 million for the Centre. Taking into account all types of recurring expenditure, the total allocation for health in the public sector in the Second Plan amounts to Rs. 533·5 million, against Rs. 287·2 million in the First Plan.

Private sector

30. The problem of providing an efficient health service in the country is so vast that Government alone cannot shoulder the entire responsibility. Philanthropists, welfare agencies and private practitioners have, therefore, a considerable part to play in providing a satisfactory health service. The agencies, other than the Government and the local bodies, at present engaged in medical and public health activity in this country are :

(*i*) Voluntary organizations such as the All-Pakistan Women's Association, Pakistan National Tuberculosis Association, Tuberculosis Patients Welfare Association, Pakistan Leprosy Relief Association, Association for Mental Health and the Family Planning Associations.

(*ii*) Missionary organizations such as the Baptist Mission, Church Mission, and Seventh Day Adventists, who run hospitals and leper asylums.

(*iii*) Church World Service, National Catholic Relief Service, CARE (Cooperation for American Remittances to Everywhere), and the Meals for Million Foundation, who distribute free medicines, clothes and milk powder among poor people and victims of natural calamities.

(*iv*) Medical practitioners of the allopathic system of medicine, who number about 7,000. In addition, there are about 15,000 practitioners of the indigenous system of medicines, who also provide curative services.

31. Though the efforts made by these agencies and individuals are commendable, particularly those of agencies which directly run health institutions or provide medical relief, they are small when compared with the total requirements of the country. Reliable data on the extent of private effort is not available. The Central and Provincial Health Directorates should therefore undertake during the Plan period, a survey of health facilities provided by the private sector, and should propose specific measures for further promoting private effort in this field. Meanwhile, the following measures should be adopted :

(*i*) Private organizations and individuals willing to open hospitals, dispensaries, maternity homes, and clinics for free health service should be granted free land or helped to acquire land.

(*ii*) The Government should provide assistance in procurement of equipment and drugs required for larger undertakings.

(*iii*) Donations to approved organizations for provision of free health services should be exempted from taxation.

(*iv*) In the larger cities and towns private organizations should evolve health insurance schemes for the benefit of middle-class people, and provide hospitals, dispensaries and other curative services as part of this programme.

32. A provision of Rs. 50 million has been made in the private sector for the health programme.

CHAPTER 16

MANPOWER AND EMPLOYMENT

THE broad objectives of a well conceived programme for manpower and employment should be to produce workers with the needed skills at the right time and place for successive stages of development; to prevent wastage of skill, experience and education; to develop means of channelling surplus manpower into useful work; to raise the level of employment; to conserve and develop the efficiency of the labour force by vigorous enforcement of standards of safety and working conditions; and to build the foundation for sound and constructive labour relations.

2. The First Plan dealt very generally with labour as a resource requiring conservation and management, and specified schemes within the principal conventional categories of labour legislation and administration. Of Rs. 11 million allocated for implementation of schemes proposed in the Plan, however, no more than 3 per cent was actually spent.

3. The country is faced simultaneously by a chronic surplus of manpower, and critical scarcities of skills in occupations of central importance for development. An important goal of the Second Plan is to produce employment opportunities for the new entrants to the labour force and at the same time to reduce the backlog of unemployment. The full effect of the Plan on employment cannot be estimated with certainty, but there is reason to believe that it will be very substantial. The largest increase in employment will take place in construction activity generated by Plan programmes of water and power development, rail and road building or renewal, and housing. The Indus Basin replacement works will also have a considerable employment impact. Increases will likewise take place in education, health and other public services. The multiplier effects of this new employment in the supporting fields of trade and services will depend upon the location of the new activity and the degree to which expanded consumer demand can be met by existing business establishments where personnel is now under-employed.

4. The Plan proposes a broad programme of manpower development and use, improvement and better enforcement of labour standards, improvement of labour-management relations, modest beginnings of social insurance, and basic fact-finding and research to support planning and administration.

Manpower planning

5. The complex problems of using available manpower resources are now clearly recognized and systematically studied in many countries for purposes of national defence. Not so well understood, however, are the different and in some ways more difficult problems of mobilizing manpower for economic and social development. The tasks of manpower planning which face the country fall into two groups which are distinct but closely

related. The first group is concerned with creating more employment opportunities for the millions of people now unemployed or underemployed. This is one of the specific objects of the Plan. This could be called the quantitative aspect of the country's manpower problem. The other group of problems, qualitative in nature, relates to the provision of trained and skilled persons. In this country, as in other developing nations, the development of modern technology has produced a great shortage of competent scientists and engineers. The growth of the government is placing a heavy strain on the supply of high-quality executive and administrative talent. Industry of all types is taxing the technical and managerial capacity of the country very heavily. Skilled industrial manpower requirements cannot be met without far more extensive vocational and apprenticeship programmes in schools and industrial plants across the country. The demand for health personnel far exceeds the supply. Other key aspects of manpower problems are both qualitative and quantitative in nature. These include the growth of unemployment among educated but non-technical people, the prevalence of illiteracy among the labour force, a weak and divided labour movement, and the critical lack of adequate employment information and systematic labour market analysis.

6. Lack of representative data on present utilization and requirements of professional and technical personnel at various levels and in different industries makes it difficult to predict the future demand for such personnel. A rough estimate of the cumulative requirements in specified categories at the end of the Plan period has been made on the basis of proposed physical and investment targets. According to these estimates about 4,400 graduate engineers of various types, architects, town planners and surveyors, 800 graduate chemists, physicists and other physical scientists, and 13,700 diploma level draughtsmen, scientific and engineering technicians will be needed by the end of the Plan. About 2,400 graduates and 3,000 diploma level technicians in these categories will have been produced during the Plan period. Further, about 200,000 additional craftsmen must be trained through apprenticeship programmes. These estimates include the foreseeable requirements of the Indus Basin replacement works.

7. About 2,200 graduates and post graduates will be needed for programmes in crop production, animal husbandry, and forestry. About 12,300 people trained at lower levels will also be needed; of these, Village AID will claim more than 11,000 and the remaining will be needed in cooperative credit, fisheries, forestry, marketing, and soil conservation and range management. The requirements of trained social workers for public and private social welfare work during the Plan period are estimated at 1,100, and 900 other professional workers are needed for programmes for the physically handicapped, adult education, instruction in handicrafts, public health and home economics. The programme in education calls for 70,000 primary school teachers, about 8,625 undergraduate and 6,155 graduate secondary school teachers. Diversified courses in secondary schools will require over 425 graduates and approximately 275 undergraduate teachers with specialized knowledge of various subjects. The health programme will require

approximately 1,800 doctors, 1,200 nurses, 850 midwives, 450 lady health visitors, 600 sanitary inspectors, 1,000 compounders and 2,500 technicians.

8. These requirements are very large and call for a drastic increase of domestic technical training facilities and a more judicious and expanded use of foreign training programmes. Some immediate measures for relieving the shortages may be taken along the following lines :

(*i*) Mobility of technical workers should be encouraged between industries, occupations, and geographic areas whenever trained persons can be better utilized than in their existing locations. Technically qualified persons who are outside the labour force on account of age, financial independence, or other reasons should be utilised. The Government can point the way by relaxing age requirements of employment; providing suitable incentives in pay, status, and amenities; and by furnishing the public with more adequate information on job opportunities in the country. Unmeaningful disparities in pay and status of technicians and other personnel should be removed. This policy will not increase wasteful movement from one job to another, but will provide opportunities for trained persons to shift to jobs for which they are best suited.

(*ii*) Employment within the country of trained Pakistanis should be encouraged by all possible means. It may be noted that a significant number of Pakistani technicians, particularly those trained abroad, are working outside the country, others are unemployed, and still others are working in jobs for which they were not trained.

(*iii*) Technical personnel should be discouraged from holding posts where persons with non-technical qualifications can be employed.

(*iv*) For the large majority of craftsmen, vocational skills should normally be acquired through on-the-job training which is realistic, rapid, and related to concrete employment requirements.

(*v*) Greater use should be made of consulting firms from abroad.

(*vi*) Thorough investigation of the present technical training facilities, both government and private, should be made to assess the feasibility of two shifts in existing technical training institutions, and to determine whether private training organizations could be improved under government management. The possibility of use of industrial training facilities of the defence organizations for civilian training purposes should be explored.

Improvements in manpower planning

9. Major deficiencies in the manpower planning field are the following:

(*i*) There have not been adequate organizational arrangements within the Government for taking prompt and effective decisions on manpower policies and their execution.

(*ii*) Coverage of manpower planning has been uneven, and adequate staff and organization have not been available to permit planning on a comprehensive and integrated basis. Consequently there has been a tendency to regard manpower planning as an adjunct to each scheme rather than as a fundamental requirement of all national development.

(*iii*) Perspective in manpower planning has been short-term in nature. Adequate attention should be given to action which will simplify the problems of the years ahead.

10. The following manpower programme is recommended :

(*i*) Collection of manpower information: This will include a programme of investigation into the existing relations between resources and requirements as a basis for future estimates of need for engineers, scientists, administrative personnel, industrial managers, agricultural specialists, health technicians, teachers of all types and skilled craftsmen.

(*ii*) Manpower projects to be executed: These schemes include existing programmes of overseas and domestic training for personnel in the various fields, reconstruction of the National Register of Scientific and Technical Personnel maintained under the Essential Personnel Registration Ordinance, the systematic collection of manpower planning information in other countries, and the establishment of employment counselling and vocational guidance by the employment exchange system and the education authorities concerned.

(*iii*) New schemes: These are projects which require either additional study or policy guidance, or both. They include the establishment of courses at centres of higher learning for industrial relations training, and expansion of training in industrial management principles and techniques.

11. *National manpower council.*—A permanent inter-departmental agency of a form to be determined is needed at the Centre to evolve a broad national manpower programme. This will provide the mechanism for direct cooperation of ministries and major agencies concerned with education, training and other sectors of the national programme which require trained manpower and which are concerned with the effective use of human resources. Essential functions of the manpower agency will be determination of national policies concerned with recruitment, training and use of manpower ; and initiation of the necessary intensive studies of resources and requirements in each major specialized field. It will study the relationship between essential civilian and defence manpower needs and will initiate programmes for improved use of manpower by both public and private agencies.

12. *Employment exchange system.*—The existing employment exchange system, a legacy from the past, has been built mainly along western lines suitable for countries at a relatively advanced stage of industrialization. In

Pakistan the routine registration of large numbers of unskilled job seekers for whom few jobs can be found has been a largely futile task. The solicitation of vacancy notifications from employers, in occupations in which persons with skills and training are scarce or totally lacking, has likewise been a discouraging duty which has brought little cooperation from employers. Placement work and the promotion of employment opportunities present special problems in a society which is chiefly agricultural and where the vast majority of the labour force is immobile, illiterate, untrained, and unresponsive to new incentives. The labour market in the country is characterized by chronic unemployment and is fragmented by geography, language differences, and traditional social and employment patterns.

13. Under the Plan programme less time and energy will be spent on the wasteful task of registering masses of unskilled persons for whom no jobs are available. Instead, principal emphasis will be given to establishment of good working relations with employers, analysis of jobs, identification of expanding fields of employment, and continuing estimates of manpower needs in local areas. The technical requirements for individual occupations are continually changing, but specific component skills and capacities can be identified by field work. The systematic study of jobs will discover job families or groupings of related skills which are interchangeable between occupations. This knowledge will assist employers and the employment exchanges in meeting skill shortages and in making best use of existing skills which are in short supply. The obligations of schools and the employment exchange system in the counselling field are mutually reinforcing. Employment counselling services for youth and new entrants to the labour market will be established by the exchanges.

14. *National training board.*—In technical training the most obvious gap is the absence of a mechanism to coordinate the existing training facilities in order to attain the most effective use of all resources. A national programme for coordination should be undertaken with provision for the representation of Government, both Central and Provincial, employers, labour organizations, and employment exchange personnel. In addition to the creation of needed machinery for coordination at the national level, it is equally important that similar provisions should be made at Provincial and regional levels. A national training board should be appointed by the national manpower council to coordinate the training programme and the use of training facilities. This body should include representatives from the Ministries of Education, Industry, Labour, and Defence. The board will review training programmes in the light of changing conditions, assess available training facilities and their capacity, provide for training in new occupational fields as new requirements appear, establish national standards and prescribe examinations. It will coordinate the existing programmes and facilities of the technical training centres, industrial schools in the Provinces, polytechnics, technical high schools and professional schools, in the light of changing manpower availabilities and needs as estimated by the national manpower council. Training boards in each Province also will be established with functions corresponding to those of the national board.

15. The provision of apprenticeship training is a major obligation of employers. But in respect of laying down the guiding principles to establish its place and relationship in the system for imparting vocational skills, the assistance of the Government is needed. From yet another angle apprenticeship training may be used as a cloak for the exploitation of child labour; such abuse is to be stopped. The definition of age groups and minimum educational requirements for apprenticeship are therefore matters for determination by the Government. The strengthening of apprenticeship training will be undertaken by the training boards.

16. The five existing training centres now operated by the Central Ministry of Health, Labour and Social Welfare will be transferred to the Provinces. Four new training Centres will be opened, one each at Chittagong, Khulna and Rajshahi in East Pakistan, and at Multan in West Pakistan. The training capacity will be raised from 1,250 seats to 4,190 seats by the end of the Plan period. The centres, in addition to their main training function, will maintain liaison with employers and educational institutions.

Use of existing manpower resources

17. The Plan recognizes that the training of personnel for strategic occupations, whether within the country or abroad, is a lengthy process which requires long range planning. Meanwhile the more immediate problem of efficient use of the available manpower must receive attention. The national manpower programme will foster and promote improved utilization in both public and private administration. This will be done in a number of ways, including more judicious use of high level manpower, development of better management, utilization of trained womanpower and extension of their education and training, coordination of military and civilian use of manpower, and initiation of a labour-intensive civil works programme to utilize idle manpower.

18. *Register of trained personnel.*—To maximize the utilization of trained personnel a comprehensive register of scientific and professional manpower will be maintained jointly by the Ministry of Education and the Ministry of Health, Labour and Social Welfare. The register will provide a centralized source of essential information on the availability and qualifications of Pakistanis trained for scientific, professional and technical work and employed both inside and outside the country. The cooperation of professional associations, employers and educational institutions will be utilized in preparing and maintaining this inventory on a current basis.

19. *Employment of women.*—Males predominate in the labour force and the number of employed women is small, especially in the non-agricultural labour force. Women are, however, now beginning to make distinctive contributions in all fields of endeavour. It can be argued that there is not enough work to go around and that the employment of women augments

the volume of unemployment, but this is a mistaken view. Work opportunity for women, higher living standards, and smaller families go together. The nation needs to use the capacities of all its people. The industrial employment of women is not yet extensive and is found mostly in lower paid occupations. Women workers require special protection for humanitarian and health reasons. Creches and day care of children are requirements in larger establishments which employ women. Part-time work is especially suitable for many women and helps to maintain the family's standard of living which then suffers less when the other family bread winners are unemployed.

20. *Manpower for defence and development.*—Important relationships between civilian and military uses of manpower should be carefully explored by the national manpower council in order to assure the best possible use of the total manpower pool. When a given expenditure can serve the dual purposes of defence and development, substantial economies can be achieved. In an industrializing society with meagre resources, all such overlapping interests should be utilized. The armed forces utilize men during significant portions of their useful lives but the nation is concerned with their entire period of usefulness. New skills, habits of discipline and familiarity with group organization are acquired during terms of military service. These attainments are national assets to be conserved after discharge and fully utilized in the civilian work of development.

21. The industrial installations and technical training facilities of the armed services can assist in meeting the requirements for industrial training; these possibilities should be explored. Only a limited increase in instructor personnel would be required to train additional persons at these installations. The armed forces may also consider the establishment of a volunteer corps of reservists who would receive practical workshop training as well as military training after which they would be placed in strategic civilian industry during the period of reserve status. It may also be considered whether a specified proportion of military manpower can be rotated on an actuarial basis through periods of service and into civilian life in order to upgrade quality of the labour force and at the same time preserve a desirable age pattern within the military establishments.

22. The national manpower council will explore ways and means whereby military screening of personnel and civilian recruitment procedures can be intermeshed to assist in the efficient utilization of manpower. The Army now selects roughly one out of each seven candidates for the officer corps after screening with a battery of physical and mental tests. This is rigorous selection. Steps should be taken so that men of high quality who are not accepted for the officer corps may be utilized for national development.

23. Job analysis and occupational research are needed for both military and civilian purposes. The systematic study of military occupations is necessary for efficient personnel management within the defence establishments; it should be undertaken by the military in cooperation with the employment

exchanges in a manner which will reveal groups of skills and aptitudes which are interchangeable between military and civilian occupations. The knowledge thus acquired will be directly useful in manpower planning to meet expanding industrial needs.

24. *Programme of civil works.*—The most conspicuous loss of potential energy in the country is idle manpower. To channel a significant portion of this human energy into productive work would be an achievement of the first magnitude. Large numbers of unskilled workers can be used in productive labour-intensive schemes which are important for national development, especially in rural areas. This proposal is timely in relation to the establishment of institutions of Basic Democracies in activating the nation's energies at the local level.

25. Many types of works lend themselves to the application of large quantities of labour with relatively little capital. Such works include coastal embankments, small dams and flood control bunds, minor irrigation and drainage schemes, soil and water conservation, afforestation, arterial and internal roads, especially unmetalled roads linking villages with towns, ponds and tanks for fish culture and general village use, sanitation and drainage, construction of small school buildings, dispensaries, community wells, and protective walls and water supply projects. Urban projects may include slum clearance, conservation of desirable areas creation of green open spaces sanitation and clean-up campaigns.

26. Administrative units required to carry out this programme, subject to policy control by the national manpower council, would include a development corps under the control of the Army which would mobilize youth for periods of national service up to two years for schemes with combined value for defence and civilian purposes. Funds for specific schemes will be allocated by the agencies which sponsor these schemes. A civil works unit in the appropriate Ministry would administer those parts of the programme which require local participation through Basic Democracies.

Labour standards and administration

27. For the Plan period the major emphasis in the field of labour legislation and administration will be on the enforcement of satisfactory physical standards at work places, sanitation and health, the eradication of child labour, provision of conciliation services and maintenance of industrial peace, and phased first steps in social security measures. Under the existing statutes and formally ratified ILO conventions, the country is committed to enforcing regulations concerning conditions of work, safety, health, and welfare of workers, control of the employment of children and youth, and other labour standards.

28. The industrial employment of children is indefensible in a country burdened with unemployment and unused manpower. Its complete elimination is desirable from every point of view ; it takes jobs from adults and depresses the wage rate ; it is a menace to health and perpetuates illiteracy ; it is directly opposed to the goal of universal primary education. The first

step is the strict enforcement of existing laws relating to child labour; the required staff will be provided during the Plan period. Second, regulation of child labour should be extended to all non-agricultural employment outside the home. The minimum age of employment should be raised from twelve to fourteen so that children may be able to complete the full eight years of schooling as educational facilities become available.

Wages and social security

29. The basic means for improving the condition of wage-earners is better wages and regularity of work. At present wages and productivity are low. The wage is set much more by custom and tradition than by market forces or productivity. Substantial differences in pay are found among workers of the same level of skill in different plants, industries and localities.

30. Especially in a semi-developed industrial economy, the Government must offer some protection to the earnings and incomes of labour. The Payment of Wages Act, which has a limited application, should be amended to cover all employees. Rigid enforcement of labour agreements, control of contract labour, the regulation of insurance and benefit funds and insurance of savings, are among the steps to be taken for protection of earnings and savings.

31. The First Plan stated that the fixing of minimum wages was not practicable except for certain classes of exploited workers. Machinery and policy for minimum wage determination is under review.

32. The most elementary form of social security for centuries has been supplied within the family, especially in societies which are largely agricultural. The extended family has provided for its non-supporting members. The social forces of the modern world, however, are shrinking the scope of the family as an economic institution, and in urban conditions its significance often dwindles to the vanishing point. Modern social security programmes embrace a variety of devices to provide systematic protection against hazards to livelihood and welfare.

33. Progress towards social security must be gradual. Beginnings should be sound, neither too ambitious nor mere gestures, realistically related to the national income and designed to strengthen work incentives, initiative and efficiency. Trained personnel with a high degree of technical capacity, financial insight and a high sense of public responsibility in handling large funds is required for this difficult field of management.

34. Three existing measures provide the beginnings of social insurance in Pakistan: workmen's compensation, employees' provident funds, and maternity benefits.

35. The existing workmen's compensation legislation has established the liability of individual employers to compensate workers for industrial injury. This legislation is inadequately administered. It needs to be replaced by a modest social insurance scheme. Recommendations have been

made in this direction by a recent ILO mission. Initially the scheme should be confined to industrial injuries and financed entirely by employers' contributions. Its extension to include sickness benefits should be delayed until adequate supporting health and medical facilities are available, but meanwhile employers should provide medical attention and paid leave in cases of sickness as well as maternity during employment.

36. The First Plan proposed that employers should establish provident funds to which workers would contribute, and from which payments would be made on retirement or termination of services. The few existing funds are restricted in scope and the required rates of contribution are quite high. Loans against the accumulated balances are made on request, a practice which destroys the social insurance functions of the funds. Until the country is ready for a comprehensive old age insurance or pension scheme, consideration should be given to the possibilities of pooling these funds to provide for superannuation benefits. Compulsory extension of the contributory provident fund system is called for in the case of employees of medium and large scale industries and commercial establishments employing a specified number of persons.

Labour-management relations

37. Problems of labour-management relations are growing in importance with the expansion of industry and the increasing number of wage-earners employed in medium and large scale industrial establishments. The industrial labour force is not yet large. Its significance, however, is far greater than its present numerical strength. It is concentrated in industrial centres, subject to new hopes and discontents, and easy to organize. Its appearance represents the most extreme and significant change in the occupational life of the country. Recruited in a haphazard manner, drawn largely from rural areas and from relatively slack trades in the towns, the new industrial workers in many cases are subject to direction by managements which approach labour relations with traditionally authoritarian and paternalistic attitudes.

38. The Government has declared that the growth of healthy trade unionism is essential for "the growth of a stable social structure, wherein there will be industrial and social peace, ensuring greater production and equitable distribution of wealth" (Revised Labour Policy, February 1959). When Independence was attained the volume of industrial activity and the trade union movement, which had been growing in the subcontinent, suffered a setback. Since then both industry and the trade union movement have grown substantially. The number of registered unions increased from 181 in 1948-49 to nearly 600 at the end of 1958, and there is a considerable number of unregistered unions. Total membership is not known but 484 unions were reported with about 500,000 members in 1956. The number of union members, however, gives little indication of effectiveness of the unions, the extent of their recognition by employers, or the scope of collective negotiations.

39. Under the new Industrial Disputes Ordinance of 1959 permanent labour courts will replace the *ad hoc* labour tribunals which have been subject to criticism for delay and bias. These will be courts of last resort. The conciliation service will be strengthened in order to prevent disputes wherever possible and to encourage their rapid settlement. This will require close cooperative relations with employers, employees and their organizations. The selection of outstanding, independent and liberal minded men for these services will go far to foster the development of sound labour-management relations for the future of industrial development in the country.

Programme analysis, labour statistics and research

40. The manpower and employment programme requires broadly based support in programme analysis, statistics and research. Technical services for these purposes are not yet available within the Labour Division. A directorate of labour research and planning was proposed in the First Plan but no action has been taken. Some statistical work is done within the Department of Manpower and Employment and in the Office of the Central Labour Commissioner, but this work is not coordinated or related to needs. A research and planning unit should be established in the Ministry at an early date. Without it the Ministry's advance planning and control of current activities are severely hampered.

41. Several special surveys of broad scope are proposed ; surveys of staffing patterns and manpower requirements in selected fields to be conducted by the Department of Manpower and Employment under the guidance of the national manpower council, as part of the manpower planning programme ; a national survey of agricultural labour to be planned and conducted in cooperation with the Ministry of Agriculture ; a survey of labour in the tea plantations ; and an enquiry into contract and casual labour.

42. *Agricultural labour.*—A broad survey of agricultural labour was recommended in 1953-54. This survey should be undertaken in cooperation with the Ministry of Food and Agriculture. The enquiry will cover information on the relative position of different classes of agricultural workers; the significance of small scale land ownership; tenancy; the extent of work for wages and off-farm employment among rural people ; the levels of earnings and standard of living ; employment and under-employment ; the pattern of family work; and the employment of women and children on the farm.

43. *Labour on tea plantations.*—No enquiry has ever been made into the living and working conditions of the tea plantation workers in Pakistan. Information with respect to their hours of work, systems of wage payment, earnings, housing and sanitation, health and welfare should be collected. These workers number nearly 90,000, largely in the Sylhet region and the Chittagong Hill Tracts. The Labour Division has proposed a ten per cent sample survey among these workers ; the survey should be undertaken by its proposed research unit.

44. *Contract labour.*—The first Plan noted that the widespread system of contract labour involves many abuses and much exploitation of workers. Very little precise information is available on the working of this system. It has gradually disappeared in most advanced countries. A special enquiry is proposed as a basis for regulation and control.

Cost of the programme

45. The estimated cost of the manpower and employment programme is Rs. 26·4 million, of which Rs. 10·6 million is classified as development expenditure. The balance of Rs. 15·8 million is non-development recurring expenditure and is to be provided for in the ordinary budget. Allocations for technical training centres and apprenticeship training are provided in the programme for Education and Training.

TABLE 1

Public expenditure on manpower and employment

(Million Rupees)

	East Pakistan		West Pakistan		Centre		Total
	Recurring	Non-recurring	Recurring	Non-recurring	Recurring	Non-recurring	
Employment exchanges ...	0·8	0·6	1·1	1·3	0·4	0·3	4·5
Other manpower programme	0·4	...	0·4	...	0·8	...	1·6
Factory inspection ...	1·1	...	1·9	...	1·2	...	4·2
Conciliation services ...	2·4	0·2	1·3	0·2	1·0	0·5	5·6
Social security and labour welfare	0·2	...	0·5	...	0·2	7·5	8·4
Analysis, research and statistics	0·4	...	0·4	...	1·3	...	2·1
Total ...	5·3	0·8	5·6	1·5	4·9	8·3	26·4

CHAPTER 17

SOCIAL SERVICE

SOCIAL service is concerned with activities which help people in making needed adjustments within the social environment. It is a specialized field within the wider area of welfare activity which includes such programmes as health, education, housing, and social security, and deals with both the preventive and the curative aspects of problems of adjustment to the changing conditions of social and economic life. The modern concept differs significantly from the age-old tradition of charity and immediate assistance for the alleviation of distress.

2. The social problems which confront the country today are many and varied. They include poverty, ignorance and lack of skills, ill-health, morbidity, malnutrition, bad housing, unemployment, and under-employment. Many of these problems are well-known, and are the concern of specific public agencies responsible for education, health, housing, and labour. There are, however, other problems of equal or greater importance and magnitude which go unrecognized and unattended, causing huge waste and hampering development. Some of these problems stem from rapid industrialization and related economic changes which cause maladjustment of individuals and groups to new conditions, social unrest, weakening of family ties, floating populations, lack of social recognition, and a craving for a new status and quick satisfactions.

3. The social service programme is primarily concerned with the prevention and cure of these social problems, by applying tested principles of self-help, organized voluntary services, community development, case work, demonstration, and research. Social workers deal with the causes of irregular attendance, failures, and indiscipline in schools, which have their roots in the emotional life of the child and defects in family and community environment. Medical social workers assist in the understanding of health and family planning problems and in developing the willing participation of the people in preventing disease and minimizing returns to hospital, and in fostering the welfare and vocational rehabilitation and guidance of patients discharged from hospitals. The social repercussions of bad housing and slums, unemployment, and floating populations can be reduced by the application of social work concepts in housing developments and industrial establishments.

4. In the preventive and rehabilitative fields of social work, private effort must come forward to supplement governmental effort in the provision of clinics, reading rooms, recreational clubs, and other facilities, through multipurpose community development programmes. The curative and remedial type of social work should be mostly the field of private agencies. The Government can help by providing professional consultation, training social workers, making available research results, and providing grants-in-aid.

Social service during the First Plan

5. The main objective in the First Plan was to build a broad programme of welfare services based primarily on the local community, and to utilize as far as possible the services of the private agencies. The Plan provided for training of workers, improvement of government organization for social work, development of communities in urban areas, payment of grants-in-aid to voluntary agencies for remedial and curative work for the physically and socially handicapped, coordination of public and private activities, and research. In general, the programme developed on the lines proposed, though progress was slow until 1958 ; only about one-quarter of the programme was achieved. Research was entirely neglected. Urban community development work, given first priority in the Plan, had hardly begun by 1958, but was then accelerated, so that about one-third of these schemes were implemented. Progress in training was satisfactory : schools of social work are now functioning in Dacca and Lahore, and a corps of trained social workers is in being. The programme of financial assistance to voluntary agencies and the organization of remedial services progressed well under the National Council of Social Welfare ; at present about two hundred voluntary agencies are receiving grants-in-aid from the Council for various social welfare activities, either remedial or curative. Among other achievements during this period were the establishment of pilot projects in urban community development and medical social work, the strengthening of private agencies, and preliminary moves towards the establishment of specific government departments of social welfare.

6. The First Plan provided a sum of Rs. 33 million for the programme in social work, against which there was a heavy shortfall. The reasons for shortfall are few but important for future planning and administration.

(*i*) Because scientific social work is new to this country, some basic aspects of the programme have been insufficiently understood, and have not yet received the energetic support that is necessary. There has been limited public action, reflecting the inferior position of social work in the administrative structure, particularly at the Centre and in East Pakistan ; the subordination of social work to other activities in West Pakistan, where the administrative arrangements were nevertheless more satisfactory ; and the inadequacy of funds provided in the budgets.

(*ii*) The Plan programmes were not based on proposals formulated by the Provincial Governments and Central Ministries ; departments of social work did not exist. For these reasons certain gaps were left in the Plan. Social service was virtually confined to the urban areas on the assumption that the Village AID programme would cover the field in rural areas, and assistance was not extended to voluntary social service agencies working in rural areas. Insufficient attention was given to the capacities of private agencies to undertake rehabilitative work with the socially and physically handicapped. Responsibility for social service was too closely centralised in the Government departments, and did not extend to the local bodies.

Objectives in the Second Plan

7. The underlying aims of the social service programme are unchanged in the Second Plan. In the light of experience and recent changes, the programme will concentrate on two main objectives :

(*i*) strengthening community life by helping the people to develop their capacities and initiative and mobilize their own resources to meet felt social service needs ; and

(*ii*) providing guidance to individuals and families in need, and assisting their adjustment to the environment.

8. The specific proposals in the Plan are the following :

(*i*) The activities of the various public social service organizations will be placed under the jurisdiction of directorates of social work at the Centre and in the Provinces to ensure coordinated effort, better control, and greater efficiency.

(*ii*) Social workers will be attached to the institutions of Basic Democracies to organize social service programmes in their jurisdictions.

(*iii*) Emphasis in the public sector will be on preventive and rehabilitative work, and in the private sector on remedial and curative work.

(*iv*) Rehabilitation services for the socially and physically handicapped will be initiated. A few model rehabilitative and remedial establishments and clinics will be set up on a demonstration-*cum*-experimentation basis to give a lead to private agencies in undertaking large scale operations.

(*v*) Legislation will be devised and existing laws revised for the better administration of private social service agencies and for the protection of women and children.

(*vi*) Arrangement of a service for the collection of religious taxes and charities such as *Zakat*, *Fitra*, hides and skins of sacrificial animals, and their use for welfare of deserving (*Mustahiqq*) persons will be initiated. The establishment of community chests, funds, and foundations will be promoted.

Size, priorities, and targets of the programme

9. Rs. 115 million in public and private funds are provided for social service during the Second Plan period, of which Rs. 85 million is development expenditure (Table 1). In addition, various Government departments, apart from those concerned with education, health, and Village AID, will provide welfare services for their staff and for the community in general; for example, the military services, railways, port trusts, and post and telegraph departments are engaged in social work, but the costs of these activities are not included in the programme.

10. The minimum essential programme to meet the current social needs of a rapidly changing society is presented. The following goals are set for the public sector:

(*i*) establishment of Directorates of Social Welfare under the Central and Provincial Governments;

(*ii*) appointment of social welfare workers to institutions of Basic Democracies; for organization, coordination and supervision of social service programmes;

(*iii*) establishment of two additional schools of social work, one in each Province, and the training of 1,100 social workers (400 university graduates and 700 auxiliary workers) during the Plan period;

(*iv*) initiation of degree courses in social work in ten colleges;

(*v*) opening of ninety-eight community projects in urban areas;

(*vi*) establishment of forty-seven medical social service projects in urban areas;

(*vii*) grants-in-aid to three hundred voluntary social service agencies;

(*viii*) opening of five family assistance centres, fifteen multipurpose centres, three homes for children, and three day-care centres for children;

(*ix*) establishment of three research units in the Directorates of Social Welfare under the Central and Provincial Governments;

(*x*) establishment of ten youth hostels in East Pakistan and twenty work camps and twenty recreational centres for children;

(*xi*) establishment of fifty-four demonstration-*cum*-experimentation projects covering various aspects of delinquency (mostly for juveniles) and rehabilitation of the physically and socially handicapped such as the deaf, dumb, blind, abandoned or neglected children, and destitute women.

11. The pubic sector programme includes the expansion and improvement of urban community development schemes already in progress, medical social work, training, and provision of grants-in-aid to voluntary agencies. New schemes will include establishment of pilot projects for the physically and socially handicapped, recreational facilities for children and youths, family services and child care, and delinquency and probation service especially for juveniles, systematic investigation, and research.

Training

12. Trained social workers are required in social welfare establishments and agencies, and also in schools, health centres, housing projects, employment counselling services, and local bodies. The demand will increase with the greater participation of the people in public affairs and increased responsibilities for action in local communities. Training facilities for professional workers must therefore be substantially improved. The improvement must depend mainly on expanding the efforts of the schools of social work to produce qualified teachers and written materials on social work. The First Plan provided Rs. 2·75 million for training 500 workers : 150 in two schools of social work at Dacca and Lahore, and 350 through short-term courses. Because the Dacca school did not start till 1959, only about 100 graduates and 250 other workers were trained by 1960. The number of workers required for public and private social work during the Second Plan is estimated at 1,100 social workers and 900 other professional workers for instruction of the physically handicapped, adult education, instruction in handicrafts, public health, and home economics.

13. Ideally, professional social workers should be university graduates with a two-year postgraduate course of intensive training in social theory and practice, but the required number of workers cannot be provided in existing circumstances because of the shortage of qualified teaching staff at the universities. The schools of social work at Dacca and Lahore, now producing together some 40 to 50 graduates every year, will increase their capacity by fifty per cent. Allowing for wastage, particularly among women graduates, it is estimated that these schools will yield 250 trained workers for employment during the Plan period. Two more schools of social work will be established, at Karachi in 1961 and at Rajshahi in 1963, which will produce another 150 graduates in the Plan period. It is proposed that the schools of social work in East and West Pakistan should provide facilities for mutual exchange of trainees, in order to promote better understanding of social problems and conditions in the country as a whole. Liaison will be developed by the schools of social work with the Village AID Academies at Peshawar and Comilla.

14. To offset the estimated deficit of 700 social work graduates, short-term courses of six to nine months duration will be organized at Karachi and Dacca by the National Council of Social Welfare with a capacity for training six hundred workers. Employees of private social welfare agencies will be given priority for these courses, which will provide

mainly on-the-job training. A further 100 workers will be trained through two similar courses to be held in 1960 and 1961 by the East Pakistan Council of Social Welfare, to meet the initial needs of essential social welfare projects. Bachelor degree courses in social work will be provided in ten colleges. University students will be encouraged and provided opportunities to do voluntary social service ; for example, at centres where students can lead recreation programmes for young people from poor homes, and in organizing work camps and programmes in slum areas.

15. The total development expenditure on training during the Plan period is estimated at Rs. 2·3 million, of which Rs. 2·0 million will be spent in East Pakistan, and Rs. 300,000 in West Pakistan and Karachi.*

Research

16. Systematic investigation is needed to determine the nature of social changes and the magnitude of social problems. Observation must be undertaken to assess results and to guide social welfare planning. Because of the great shortage of trained research workers, a scale of priorities is needed. Urgent fields for study are : the impact of industrialisation on family life and the community, the role of private social welfare agencies, the characteristics and potentials of the socially and physically handicapped, and juvenile delinquents.

17. The First Plan provided for three research units in the Provincial and Central Governments. The scheme was not implemented, and is again proposed for implementation during the Second Plan period. A sum of Rs. 480,000 is allocated for the purpose. These research units will be located in the Directorates of Social Welfare, and will work in collaboration with the schools of social work, administrative departments, and especially with local bodies and the chief private social welfare agencies which conduct extensive work in the field. Research units should be established in both governmental and private agencies, and in schools of social work to conduct research projects related to the planning, organization, and operation of social services. Research fellowships should be awarded by the universities. These cells will provide useful feeders and support to Directorate units in the conduct of research projects.

Administration

18. A cause of serious delay in social work development in the First Plan period was the lack of appropriate administrative arrangements. The Directorates of Social Welfare will in future be responsible for the implementation and expansion of programmes, stimulation of private effort, provision of technical guidance and supporting services for voluntary agencies and local bodies, inspection and appraisal of social work, and coordination of public and private effort. The Directorates of Social Welfare will be in constant touch with public and private activities, and will provide information and support for government programmes of urban community

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*In the text, regional allocations are mentioned according to location of expenditure. In Table 1 on page 391 they are given by executing authorities.

development and organization. They will foster the work of curative and rehabilitative social services executed by voluntary agencies, and concern themselves with child welfare, training, research, publication, and legislation.

19. The existing Central and Provincial Councils of Social Welfare will be attached to the Central Ministry and to the appropriate Provincial departments. Their membership will be similar to that of National Council of Social Welfare as recently re-constituted, with about 16 to 20 members representing public departments and leading voluntary welfare agencies. Public-spirited citizens, social scientists, and social workers can be co-opted permanently or for a particular session. The Councils will act as links between governmental and non-governmental effort, and will advise the Government on policies and programmes and on financial requirements of private agencies. Hitherto the secretariats of the Councils function separately; henceforth they will form part of the Directorates of Social Work. Social workers will be attached to institutions of Basic Democracies in order to develop social work programmes, both public and private. Administratively they will be responsible to Commissioners and District Magistrates in their areas; professionally they will be under the relevant provincial departments.

20. The Plan provides in total a sum of Rs. 3·5 million for development expenditure on training, research, and administration.

Urban community development

21. Community development is vital for socio-economic progress. It is an economical and useful means of conserving, maintaining, and adequately developing the human and material potentials in communities, rural or urban; of meeting social needs and raising the standards of living of the people. It creates initiative and leadership, helps to mitigate apathy, and draws forth latent reserves of skill, energy and other resources which exist in every locality. Principles and methods of community development and organization have been applied with some success in rural areas through the Village AID programme and in urban areas through the community development programme during the First Plan period. These programmes will be expanded and strengthened further during the Second Plan period.

22. The community development programme in urban areas is already in progress. It provides, for communities of fifteen to twenty thousand people, two or three trained social workers, one of whom is a woman, to help them to operate much needed social services efficiently on a self-help basis. These services include community hygiene and sanitation, medical clinics, family planning, general health and fundamental education centres for adults, recreational services, industrial homes, and assistance centres for the destitute, particularly women. The workers will concentrate on obtaining, through the machinery of Basic Democracies, the participation of the community in the assessment of needs, mobilization of resources, and organization of the necessary services. The workers stay in the background and act mostly as professional consultants, coordinators, and guides. The aim is to enable

the community to acquire confidence, meet its own needs, and organize and maintain its own services. Under the First Plan, seventy urban community projects were to be established. But the programme did not start until 1958, and by 1960 only twenty-five projects were established. During the Second Plan period, 98 projects will be established, costing Rs. 5·55 million, and covering about a quarter of the urban population. Regional allocations are: East Pakistan Rs. 2·6 million; West Pakistan Rs. 2·5 million ; Karachi Rs. 450,000. Recurring costs of the programme are estimated at nearly Rs. 5 million during the Plan period.

Medical social work

23. The fundamental concept of medical social work is to make medical treatment more effective, minimize returns to hospital, prevent disease and family breakdown in the patient's family, and help to rehabilitate the patient. After-care requires special and individual attention, but community action is also needed in cooperation with health authorities and other agencies concerned, to prevent the spread of disease. Pilot projects were undertaken in the First Plan period, and presage well for the success of the programme. Five such projects are now operating; another forty-seven will be established in the Plan period at a cost of Rs. 630,000: East Pakistan, Rs. 190,000; West Pakistan, Rs. 240,000; and Karachi Rs. 200,000.

Family and child welfare

24. The breakdown of families leads to serious and diverse social and emotional problems. The tradition of family life is strong in this country, but it is threatened by rapid urbanization. To meet this situation, a new family service will be initiated, mainly by local bodies and private agencies in the Plan period. The service will help to meet family dislocations caused by emergencies such as death, sickness, and natural calamities. It will also undertake guidance of families in family planning programmes. This work will be integrated with the social assistance programme of the Central Directorate of Social Welfare for the benefit of indigent families. Rs. 480,000 will be spent by the Central Government, and additional sums by local bodies and private agencies to develop this service.

25. The Plan makes special provision for child welfare services. Trained workers will be appointed, initially by the Government and perhaps later by local bodies and private agencies, to protect the interests of children in orphanages and those deprived of normal family care. Community effort will be mobilized for the care of neglected children, and to develop foster-family arrangements and day-care centres for such children. Fifteen multipurpose centres for the care and protection of neglected and delinquent children, three model residential institutions for babies and young children, and three day-care centres for the children of working mothers will be established. These centres will be pilot projects and model institutions for local bodies and voluntary agencies. Nucleus child welfare

units will be established in the Central and Provincial Directorates of Social Welfare to look after the specific interests of children, and to coordinate child welfare activities. The estimated cost of providing family and child welfare services in the Plan period is Rs. 4·7 million: East Pakistan Rs. 2·5 million, West Pakistan and Karachi Rs. 2·2 million.

Youth work and recreational services for children

26. There is a shortage of recreational services for children and youth. It is not possible for the Government to undertake a large scale programme ; this is a field for the Basic Democracies and private agencies, but a lead must be given by the Government by means of pilot projects. It is expected that agencies such as the National Recreation Association, National Youth Councils, and Boy Scouts and Girl Guides will follow this lead. It is considered desirable that private effort should come forward to undertake and conduct sports and recreation, particularly in congested areas of big cities. Grants will be available from the Councils of Social Welfare. For this service the Plan provides Rs. 1·75 million of which Rs. 1·5 million will be utilized in East Pakistan.

Delinquency and probation

27. With progressive industrialization and urbanization, delinquency, particularly among juveniles, is increasing. Remedial treatment is required. Only five reformatory institutions and remand homes exist in the country, and these lack provisions for psychological treatment. Services are urgently needed for the detention, training, and vocational rehabilitation of juvenile delinquents, with an efficient probation service to prevent their returning to crime. Seven training institutes, seven remand homes for boys and girls, and six juvenile courts will be established in the Plan period as pilot projects to be expanded when funds and trained staff are available. The Central and Provincial Directorates of Social Welfare will have administrative units for organizing this service. Approximately Rs. 5 million are provided for this programme in the Plan : East Pakistan, Rs. 3 million; West Pakistan and Karachi, Rs. 2 million.

Services for the socially and physically handicapped

28. The first Plan assumed that voluntary agencies could deal with the socially and physically handicapped, with financial support from the Government. Some agencies have done commendable work, but the task calls for greater effort. The Second Plan therefore proposes that the Government should establish thirty-four model institutions, and provide technical guidance as well as financial grants to help the private agencies to expand and improve their services. The estimated expenditure is Rs. 15 million: East Pakistan, Rs. 9 million; West Pakistan and Karachi, Rs. 6 million.

Grants-in-aid to voluntary agencies

29. As in many other countries, non-governmental social service agencies have played the role of pioneers in the development of social work. The people have long been motivated by philanthropic attitudes, religious injunctions, human values, and traditions to help those in distress. Private agencies have been developed mostly without governmental support around some specific ideology or some individualistic or community motives. Some agencies have emerged as a consequence of national catastrophies, mainly as relief-giving agencies. A few were initiated to meet specific needs of children, welfare of women, and the like. These agencies still carry the major burden of providing services in the country, particulary for immediate relief. There is a dearth of data and statistics relating to the work of private social service agencies, but it is estimated that some 500 agencies are working in this field. They are engaged in diverse activities. Some are multipurpose agencies; others operate in specialized fields dealing with physically, mentally, and socially handicapped women and children. Still others sponsor youth work and recreational facilities for children. Only about 200 of these are registered with the Councils of Social Welfare established by the Provincial and Central Governments in the First Plan period to control, coordinate, and standardise social work activities. These agencies were given about Rs. 5 million as grants-in-aid during this period, for the employment of trained workers and maintenance of regular offices; professional consultation was also provided by the Councils. Efforts are being made to bring registration procedure up to date. But the Councils are not yet staffed adequately for the work of inspection and technical assistance to the agencies. As a result, services provided by some agencies are far from adequate. Neither private nor governmental effort can alone meet the social needs of the country. Both must participate in the task, the Government undertaking policy formulation, general organization and administration, training, research, preventive social work, and demonstration of working techniques; and private agencies specializing in direct provision of remedial and specialized services. A sum of Rs. 13·5 million is set apart for giving grants-in-aid to 300 private agencies during the Plan period: Rs. 6·75 million in East Pakistan and an equal sum in West Pakistan and Karachi. In return, the Government will ask for adequate coordination between the various private agencies, require that they shall employ trained social workers, and ensure through registration and frequent inspection that they maintain minimum standards of service. The Government will help also by the provision of training facilities and professional consultation, by communicating results of research, and by promoting coordination. It is estimated that Rs. 15 million will be mobilized by private agencies from their own resources.

Legislation

30. With changing social and economic conditions, new legal measures are required to prevent social disintegration. A specific law for the registration of social service agencies is urgently needed to prevent exploitation of the

public, and to ensure equitable and responsible service. Furthermore, measures for the creation of juvenile courts, control of beggary, vagrancy and child labour are needed to synchronize with social service development in these fields.

Social service expenditures

31. The expenditure from government funds proposed for the social service programme in the Plan period is summarized in Table 1 below. It amounts to about Rs. 85 million, including the Rs. 35 million to be spent by the institutions of Basic Democracies. Associated with this programme is recurring expenditure of about Rs. 15 million over the Plan period.

TABLE 1

Public development expenditure on social service schemes, 1960-61 *to* 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
Training, research and administration	2·40	·05	1·01	3·46
Urban community development	2·60	2·50	·45	5·55
Medical social work	·19	·24	·20	·63
Family and child welfare	·55	·55	3·57	4·67
Youth work and recreational services for children	1·50	·25	...	1·75
Delinquency and probation	1·10	·50	3·32	4·92
Rehabilitation services for the socially and physically handicapped	5·47	1·33	8·43	15·23
Grants-in-aid to voluntary agencies	2·50	2·50	8·50	13·50
Social service under Basic Democracies	12·25	19·25	3·50	35·00
Total	28·56	27·17	28·98	84·71

[illegible] impositions, [illegible] values and traditions to [illegible]. Private agencies have been developed mainly without [illegible] some specific ideology, or some individualistic or [illegible]

[illegible] social service agencies, but it is estimated that some 500 agencies are working in this field. They are engaged in diverse activities. Some are multi-purpose agencies, others operate in specialized fields dealing with [illegible] group work and recreational facilities for children. Only about 200 of these are registered with the Councils of Social Welfare established by the Provincial and Central Governments in the First Plan period to coordinate and standardize social work activities. [illegible] were given about Rs. 3 million as grants-in-aid during this period for the employment of trained workers and maintenance of regular offices; professional consultation was also provided by the Councils. Efforts are being made to [illegible] registration procedure [illegible] the Councils are not yet staffed adequately for the work of inspection and [illegible] agencies. At present services provided by some agencies [illegible] other private and governmental [illegible] the social needs of the country [illegible] in [illegible] Government undertaking policy formulation, general [illegible] coordination, training, research, preventive social work and demonstration of [illegible] technical and private agencies [illegible] residential and [illegible] services. A sum of Rs. 12.5 [illegible] for giving grants-in-aid to 200 private agencies [illegible] Rs. 6.75 million in East Pakistan and an equal sum in [illegible] Karachi. In return, the Government will [illegible] benefit the various private agencies, require that they employ trained social workers and [illegible] that they maintain minimum standards of service. The Government will help also by the provision of training facilities and professional consultation, [illegible] research and by promoting coordination. It is estimated that Rs. [illegible] million will be mobilised by private agencies from their own resources.

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CHAPTER 18

VILLAGE AID

THE purpose of the Village Agricultural and Industrial Development programme is to foster leadership, initiative, and cooperation among the rural community, to enrich village life by promoting social and cultural activities, and to improve the economic condition of the villagers by assisting them to increase production from agriculture and small industries on a self-help and mutual help basis. The operational unit of Village AID is the development area, inhabited by about 140,000 persons (100,000 in the First Plan), and served by a development officer, supervisors and village workers acting in concert with the civil authorities and the technical personnel of the development departments assigned to the area. As a multipurpose extension operator, the village worker is both an important instrument of rural development and a link between the villagers and the nation-building departments. With the creation of institutions of Basic Democracies, a new dimension has been added to community development. In cooperation with these institutions, the Village AID organization will, in future, have even greater opportunities than before of promoting the integrated social and economic advancement of the rural community.

Progress under the First Plan

2. The Village AID programme achieved a fair degree of overall success during the First Plan period. The programme was introduced into 176 development areas, as against the Plan target of 172 areas. In terms of money and labour, the village communities contributed about Rs. 12 million for education, health, and other services, and for the construction and improvement of roads. Some 150,000 agricultural demonstration plots were laid out; 1,000 miles of canals were dug; 3,000 miles of unmetalled roads were constructed; and 4,000 miles of old roads were put in serviceable condition. The adoption of improved farm practices was faster in the development areas than elsewhere, although, in general, accomplishments in agriculture were short of expectations.

3. Cooperation between the Village AID organization and the nation-building departments has not been satisfactory. Village workers, supported by departmental technicians, were intended to function as extension agents of all departments at the village level. This arrangement worked reasonably well in East Pakistan but not in West Pakistan, where the existence of a good deal of unhealthy rivalry necessitated strong intervention by the Central Government to set matters right. For the future, problems of coordination are expected to be resolved as a result of the integration of relevant departmental representatives with the councils of Basic Democracies which will be responsible for development within their respective areas. The development officer will aid and advise the councils in all matters of rural development and serve as a coordinator and a staff resource. These adjustments in organizational relationships are expected to accelerate development, especially of agriculture.

4. The temporary nature of the Village AID organization has been a handicap. It has not been possible to attract a sufficient number of adequately qualified people to the organization, nor to retain them. These problems, inherent in a temporary agency, can be overcome by converting Village AID into a permanent organization, and by recognizing that a nation-wide facility of this type will be needed indefinitely.

Programme under the Second Plan

5. The Second Plan treats the Village AID organization as a significant instrument of rural development in all its aspects, and especially in relation to agricultural production. It will be necessary eventually, therefore, to have the organization represented at all levels and in all parts of the country. Training capacity will be enlarged during the Plan period but it may not be possible to achieve country-wide coverage by workers at the village level; however, by accelerating the recruitment and training of development officers, all areas will be served by a development officer and at least 85 per cent of the rural population will have access to the services of village workers. The total number of development areas by 1965 will be 435, of which 225 will be in East Pakistan and 210 in West Pakistan, including 16 in the Special Areas. Supervisory control exercised by one supervisor over 15 village workers has not been effective in the past and the Plan, therefore, provides one supervisor to 10 village workers. Supervisors should either be graduates in one of the subjects dealt with by the nation-building departments or experienced village workers. There should be one supervisor for irrigation and road works for two development areas; and every development area should have one supervisor for adult literacy work, and one woman supervisor to guide and superintend women workers. The number of village workers in a development area should be determined by the population, size of the area, and communication and other facilities.

6. Village workers are given one year's training at the Village AID Training Institutes, with emphasis on agriculture, but they should undergo refresher courses from time to time in the various fields of their activity. Under the guidance of specialists, they should, for instance, learn to lay out agricultural demonstration plots, inoculate animals against common diseases, control crop diseases and pests, organize adult literacy groups, and promote simple hygienic and sanitation measures.

Development expenditure

7. The First Plan made a provisional allocation of some Rs. 800,000 as development expenditure for each development area to cover the capital and recurring costs of the Village AID programme. The community was expected to contribute half the cost of the programme, in labour and material provided locally. At the end of the first four years, no development expenditure under the Village AID programme was to be borne by the Government. A longer period is, however, needed to awaken the creative energies

of the rural community. The Second Plan, therefore, proposes that development expenditure be phased over 10 years instead of four years. At least 50 per cent of the development expenditure should be on promotion of agriculture and allied activities. A provision of Rs. 484 million is made in the Plan to meet the cost of the Village AID programme. Its distribution is indicated in Table 1.

TABLE 1

Public sector development expenditure on Village AID, 1960-61 to 1964-65

(Million Rupees)

	East Pakistan	West Pakistan	Centre	Total
***Village AID*:**				
Administration	112·8	81·5	10·1	204·4
Training	14·2	10·1	21·0	45·3
Development	70·1	64·4	6·5	141·0
Others (audio-visual, etc.) ...	7·3	6·7	5·8	19·8
Sub-total ...	204·4	162·7	43·4	410·5
Additional expenditure on account of Basic Democracies	32·2	20·6	20·4	73·2
Total ...	236·6	183·3	63·8	483·7

8. Five double capacity training institutes were set up in East Pakistan, and three double and three single capacity institutes in West Pakistan to train village workers in the philosophy and techniques of the programme. Nearly 5,000 village workers (including 450 women) have been trained at these institutes, some 1,750 in East Pakistan and 3,250 in West Pakistan. The course lasts twelve months, of which six months are devoted to agriculture and allied fields; the rest of the course includes studies in health, sanitation, public works, and extension methods. Over 11,000 additional village workers will be required in East and West Pakistan to carry out the Plan programme. To meet the training needs of these workers, one single and one double capacity institute will be established in East Pakistan, and one of the single capacity institutes in West Pakistan will be doubled in size.

Adult literacy and lay leaders training programme

9. During the First Plan period, an adult literacy production unit was started in West Pakistan at one of the Village AID training institutes, where a group of 300 adult education workers was trained for six months in the techniques of teaching illiterates, and in the production of follow-up teaching materials. In East Pakistan, village workers were trained on a peripatetic basis within the development areas by an adult literacy adviser. The efforts of adult literacy workers have been limited by a number of factors: they were not effectively employed for more than two to three hours in the evening; they could not arrange classes for more than one village at a time; and they could not supply the new literates with adequate reading material. The adult literacy programme, operated by the Village AID organization, with the assistance of educational experts, will continue to be pursued in the Plan period, and an effort made to eliminate the disabilities from which it has suffered in the past.

Academies for Village Development

10. Two Academies for Village Development were established at Peshawar and Comilla in 1959. These Academies function as autonomous institutions under the administration of Boards of Governors. They are now entrusted with the task of training personnel in the philosophy and responsibilities of Basic Democracies, in addition to providing orientation and in-service refresher courses to senior officers and technicians of departments concerned with development programmes. The Academies will promote research on techniques of development administration, determination of public activities and the needs of communities, and problems of community development generally.

Evaluation

11. As recommended in the First Plan, a nucleus programme analysis unit was started in 1959 in the Central Village AID administration. The unit has collected preliminary data for evaluation of the achievements of the Village AID programme since its inception. An evaluation of the internal problems of the programme by the unit should take precedence over broad studies of rural development which can be undertaken by other organizations.

PART IV

REGIONAL DEVELOPMENT

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CHAPTER 19

REGIONAL DEVELOPMENT

A regional bias in national planning is inevitable, because of the geographical separation of the two parts of the country and the existence, in both these parts, of areas which have peculiar social and economic problems of their own which require special treatment.

2. The climate and natural resources of East and West Pakistan are markedly different. This is both an asset and a liability. On the one hand, the resource base of the national economy is perhaps more varied than it would be in a continuous and homogeneous territory, and there is some natural cushion against the hazards of nature. On the other hand, high transport costs adversely affect the mobility of labour and capital and the movement of goods between the two Provinces.

3. Historically the economic growth of East Pakistan has lagged far behind that of West Pakistan. At Independence the two areas started from different levels of development. After Independence, for a variety of reasons, a larger flow of immigrant capital, enterprise and technical skills went into West Pakistan than into East Pakistan.

4. Development activity in the period preceding the First Plan proceeded unevenly with no effective policy for ensuring steady development of the country as a whole. The First Plan took account of the situation, and emphasized the need for accelerating the development of East Pakistan. Full implementation of the Plan was, however, retarded by a variety of factors, including political instability, serious shortage of technical skills, deficiencies in administrative procedures, and absence of local enthusiasm and support without which no plan can succeed. Despite these handicaps, a good deal of progress was made in the Province, even though implementation of the Plan as a whole fell far short of the targets.

5. An important objective of the Second Plan is to accelerate the pace of economic development of East Pakistan, as well as of the relatively less developed regions of West Pakistan, where *per capita* income is low, the economy is undiversified, acute problems of unemployment and underemployment exist, and the savings potential is much lower than the average savings potential in the economy.

6. Historically, economic growth has in no country taken place simultaneously and at the same rate in all regions. In fact regional disparities have generally tended to increase during the earlier phases of economic growth. It is only in the later phases of growth that they have narrowed down in some countries, but even in some advanced countries, there are greater regional disparities than those obtaining as between the two Provinces of Pakistan. The structure of the economy in Pakistan is such that it is not possible to make precise estimates as to the growth rates which will be or can be achieved in the two Provinces in the future. Under such conditions, to predict an equalization of income levels between the two Provinces, or project a precise

reduction in their income disparity over a given period is equally impossible. What is important, here as elsewhere, is to maximise development in the less developed parts of the country without prejudicing national development as a whole.

7. The Plan's approach to the problem of regional development is to promote the mobility of labour and capital between various regions, to build social and economic overheads, and to provide incentives for investment in less developed areas. To this end, special importance is attached to provision of transport facilities and reduction of transport costs for the movement of goods and persons, particularly between East and West Pakistan. Although considerable progress has already been made in building up economic overheads in East Pakistan, these need further strengthening. The Plan provides for rapid development of power, transport, communications, irrigation, drainage and flood control facilities in that Province. To ensure sound development, surveys, investigations, research and pilot projects must precede the preparation of projects and schemes. A transport survey and a comprehensive industrial survey by foreign experts are in progress in East Pakistan. Agricultural production is stagnant and industrial development of the Province is still in its early stages. The Plan provides for a bold programme for agricultural and industrial development. This is expected to increase the production of foodgrains and agricultural raw materials and to diversify the economy of the Province. Due to the shyness of private capital for investment in industry in the Province, greater reliance has to be placed on the public sector in East Pakistan for industrialization. For the less developed regions of West Pakistan a special though much less ambitious programme is proposed.

8. A summary of the Second Plan development programme for East Pakistan, West Pakistan, and for the Special Areas and Frontier Regions of West Pakistan is presented below.

Development programme for East Pakistan

9. *Agriculture.*—Agriculture accounts for more than 65 per cent of the domestic product of the Province compared with about 45 per cent in West Pakistan. A comprehensive programme has been embodied in the Plan for increasing the agricultural output. The Province is expected to produce 8·8 million tons of foodgrains out of the total national target of 15·9 million tons by 1965, an increase of about 19 per cent over the base period. The bulk of the Province's output will be in rice. Of the total projected output of 10 million tons of rice in the country, 8·6 million tons are to be produced in East Pakistan by 1965. Among cash crops, the production of jute is expected to increase by about 1·3 million bales (22 per cent); of tea by 10 million pounds (18 per cent); and of sugarcane by 1·62 million tons (42 per cent). Large increases are projected in vegetables, fruits, fish, and forest products.

10. In view of the scarcity of land in the Province, the programme will concentrate on increasing crop yields and multi-cropping. Irrigation will be provided on a considerable scale for raising an additional winter crop from the same land wherever feasible. While natural manures will be used on an expanded scale, there will be a great intensification in the use of chemical fertilizers. Better plant protection services will be organised; improved seeds will be used. Storage capacity will be increased by an additional 365,000 tons and cold storage facilities will be expanded. Fisheries will be further developed. A fish landing jetty with a fish shed will be constructed at Khulnaghat, and a fish processing plant at Chittagong. Animal disease control and prevention services will be expanded and improved. Increased fodder production is contemplated. Investigation and research will be carried out for developing and introducing new crops (such as wheat, barley and coffee), better varieties of seeds, better methods of crop raising, horticulture, fishing, animal husbandry, poultry-farming, and exploitation of forestry resources. About 40,000 demonstration plots will be established. Cooperative organisations will be reconstituted to extend credit and marketing facilities.

11. *Water and power.*—The irrigation problem of East Pakistan is different from that of West Pakistan in that there is excess water during about five months of the year and shortage of water during the rest of the year. The problem, therefore, essentially is one of readjusting the supply of water to cropping requirements throughout the year by regulating excess flows during the rainy season through drainage and flood control, and by increasing the availability of water during the dry months through irrigation. In addition, tidal embankments are necessary for preventing the inflow of saline water in the southern areas. The ground water potential will also need to be exploited and its use regulated with that of surface water. The water and power programme in the Plan, to be executed by the Water and Power Development Authority, is designed to meet these requirements. Of the major multipurpose schemes, the Plan provides for the completion of the Karnafuli project and the Kushtia Unit of the Ganges-Kobadak scheme. New projects taken into account in the Plan are the Teesta barrage, the Second Unit of the Ganges-Kobadak scheme, and the Khulna multipurpose, the Brahmaputra multipurpose, and the Ganges-Brahmaputra Doab schemes. Among other water projects are ground water development and pump irrigation schemes. Flood regulation and drainage schemes include, apart from tidal embankments in southern coastal areas, the comprehensive drainage scheme for Faridpur; the improvement of Old Dakatia and Little Feni in Tippera and Noakhali; re-excavation and dredging of a number of rivers in the Tippera district; and comprehensive drainage at Noakhali. Provision has also been made for small irrigation and drainage schemes throughout the Province. As a result of these irrigation, drainage, and protective works, about 1·4 million acres of improved and newly irrigated land should become available for cultivation.

12. Under the power development programme, additional generating capacity will be completed in East Pakistan at the Karnafuli hydroelectric

station (120,000 kw), and Fenchuganj fertilizer factory (36,000 kw). The high-voltage transmission line connecting Dacca, Chittagong, and Karnafuli will be completed early in the Plan period and will be extended to Sylhet. A separate high voltage grid will connect Goalpara and Bheramara thermal stations. These grids, along with extensive secondary transmission and distribution systems, will serve the major load centres of the Province and make possible a start in the electrification of rural areas. A number of privately owned generating stations will be taken over, modernized, and extended.

13. *Industry.*—An ambitious programme has been formulated for accelerating the industrial development of East Pakistan. The programme embodies a conscious effort to bring about a structural change in the economy of the Province by reducing the pressure of population on agriculture, and by increasing industrial production. The industrial programme is designed to secure in East Pakistan substantial development of food processing industries, especially sugar, in which the Province has a natural advantage. The production of jute manufactures will be expanded by about 52 per cent, the capacity of jute industry will rise to at least 12,000 looms by 1965 ; production of cotton textiles will be increased through additional spindles to be installed in the Province. Fertilizers and other basic chemicals will be manufactured locally. A steel plant with a capacity of 100,000 tons per annum will be set up for meeting local requirements. Stress will be laid on exploitation of local resources such as non-metallic minerals, and other agricultural and animal by-products and wastes, and prospective rubber plantations. A number of industrial estates will be established at different locations. Small scale industries will be developed through the Small Industries Corporation.

14. *Fuels and minerals.*—In view of insufficiency of proved fuel and mineral reserves in the Province, high priority is assigned to programmes for the discovery of mineral wealth. It appears likely that well over half of the new investment under the Plan in oil and gas prospecting will be made in East Pakistan, especially in the northern and eastern districts. The utilization of natural gas at Sylhet will begin in 1961, when the new fertilizer plant at Fenchuganj goes into operation. The utilization of gas from the Chattak field will begin in 1960 on completion of an 11-mile pipeline to the Chattak Cement Factory. The combined output of these two fields is projected at 7,500 million cubic feet in 1965. If additional reserves are discovered, the output of these fields will be stepped up and gas supply extended to additional consumers. Provision is also made for exploitation of peat deposits in Faridpur and Khulna districts and for exploitation of coal and limestone deposits.

15. *Transport and communications.*—The railway programme included in the Plan will take care of immediate requirements, and will be reviewed on the completion of the comprehensive transport survey. The route mileage may not increase noticeably, but provision is made to accommodate increasing passenger and goods traffic by replacement of rolling stock, rehabilitation of track, and improvements in operational efficiency. The Dacca Railway Station is to be moved to another site to meet heavy traffic requirements. Road building in the Province is difficult and very expensive. Of the work in progress on

roads and in building new stretches, priority is to be given to those nearing completion and connecting important centres. About 740 miles of roads under construction will be completed, and 170 miles of new roads will be taken in hand, 130 miles being completed during the Plan period. A government sponsored bus service is being organized to give a fillip to the development of bus transport. As a beginning, a fleet of 200 buses will be introduced to ply on the city and suburban routes of Dacca and Chittagong in competition with private enterprise. In the private sector, provision is made for 1,000 buses and 2,400 trucks for replacements and additions. The bulk of traffic in East Pakistan is handled by the inland waterways. Existing facilities are seriously deficient. A major overhaul of the waterways service is essential for accelerating the economic growth of the Province. Provision is made in the Plan for increasing the efficiency of the water transport system by improved dredging, pilotage and port facilities. By the end of the Plan the length of effective waterways will increase from 2,800 to about 4,000 miles. Air transport facilities within the Province will be increased. The runways at Cox's Bazar and Jessore will be improved ; a new runway will be constructed at Ishurdi ; and communication facilities and navigational aids at Sylhet and Lalmunirhat will be improved. Five hundred and twenty new post offices and 120 new telegraph offices will be established and the number of telephones will be increased by about 13,700.

16. *Housing and settlements.*—A college of architecture and town planning, three building trade schools, and one building research laboratory will be established in East Pakistan. Pilot projects for village planning will be undertaken. About 40,000 new tubewells will be sunk in the rural areas, and many old, clogged ones will be repaired. Town plans will be prepared for Chittagong, Khulna, and other large towns. The Dacca and Chittagong water supply and sewerage schemes will be implemented, and potable water-supply will be provided to other selected urban areas. Residential plots will be developed by the Government, mainly for the settlement of shelterless displaced persons. Housing corporations will be sponsored for industrial workers.

17. *Education and training.*—The Province has an adequate number of schools and colleges, and new institutions are not considered necessary. The existing institutions are badly in need of improvement through the provision of better buildings, equipment, and qualified staff. Of the 26,300 primary schools in East Pakistan, 13,300 will be provided with better buildings, supplies of equipment, and with better qualified teachers. The number of school-going children of the age-group 6—11 will increase by 1·3 million, raising the percentage from 48 to 63. In secondary education, 1,000 junior and 1,200 senior high schools will be provided with qualified staff and improved buildings and equipment ; 20 pilot secondary schools are to be established and hostel facilities expanded. Facilities for girls education will be greatly expanded all over the Province. The school-going age-group 11—16 will increase by 200,000. Teacher training facilities will be expanded. Five

government colleges and 28 non-government colleges will be modernized. Three new universities will be established, including two technical universities for agriculture and engineering.

18. *Health.*—The health programme provides for setting up 150 rural health centres by the end of the Plan. Extensive programmes are to be launched for the control of malaria, tuberculosis, small-pox, leprosy, and other diseases. Facilities will be increased for the training of doctors, nurses, and health visitors. The existing institutes for the training of lady health visitors will be improved and three new institutes established. There will be three training institutes for health technicians, and three additional schools for nurse training. The existing medical colleges at Dacca, Chittagong, and Rajshahi will be improved and a new dental college started in Dacca. The number of doctors will increase by about 1,900 and that of hospital beds by about 3,350. A family planning programme will be organized on a wide scale with clinics in all hospitals, dispensaries, and maternity centres.

19. *Social service.*—Under the social service programme, about 575 additional social workers will be trained ; 40 urban community development and 19 medical social work projects will be launched ; 10 children's recreation centres, and 20 youth hostels and camps will be set up, and 20 pilot projects for the socially and physically handicapped will be sponsored. About 125 voluntary agencies will receive grants-in-aid from the Government for different types of social service activity.

20. *Under-developed areas.*—Adequate attention has been given in the Plan to the relatively less developed areas in East Pakistan. These areas do not constitute a serious problem because, except to some extent in the Chittagong Hill Tracts, there are no important social or physical barriers between them and the other parts of the Province. The proposals made in the Plan offer opportunities to these areas to advance in step with the rest of the Province.

Development programme for West Pakistan, including Karachi

21. The Plan provides for a development programme for West Pakistan large enough to accelerate the rate of economic growth already achieved in the Province.

22. *Agriculture.*—As agriculture in West Pakistan is heavily dependent upon irrigation, substantial improvements and expansion of the irrigation system are proposed. Scientific agricultural methods and cultural practices, expeditious colonization, and the introduction of cooperative land management techniques are also proposed. The consumption of chemical fertilisers will be greatly increased. Plant protection measures will be substantially increased ; additional seed multiplication farms will be opened ; and agricultural demonstration will be expanded. Marketing facilities will be improved. Fish production will be increased, and facilities provided for storage, transport, and marketing of fish. The livestock programme includes breeding farms, and more effective disease prevention and control.

23. The production of rice is expected to increase from about one million tons in 1960 to 1·6 million tons in 1965, and that of wheat from about 3·7 to 4·2 million tons. The production of all foodgrains taken together is expected to increase from 5·81 million tons to 7·17 million tons, an increase of 23 per cent. The production of cotton is expected to increase by 38 per cent from 1·65 million bales to 2·28 million bales and of sugarcane by 32 per cent, from 11·6 million tons to 15·3 million tons.

24. *Water and power.*—Water development in West Pakistan presents special problems. Improvements in irrigation have become urgently necessary. Crop yields are falling, partly because of low and irrational application of water. Storage is needed for providing additional regulated supplies. Vast tracts of land have been devastated by waterlogging, salinity and alkalinity. To counter these effects, extensive drainage and efficient water use are needed. Revamping of canals will be necessary for improving and rationalizing water applications. Depletion of river flows and flood damage necessitate river channel rectification, flushing, and protective works. Electrification is needed for pumping water to expand agriculture, for serving and promoting industry, and for meeting domestic uses. Suitable programmes have been evolved in the Plan to meet these requirements to the maximum extent possible.

25. The water and power programme comprises projects in hand as well as new schemes. The colonization of the Thal project, which has fallen behind hand, is scheduled for completion during the Plan period. The canals of the Warsak Dam are due for completion by 1961. The headworks of the Gudu Barrage, now much behind schedule, are expected to be completed by 1962 ; remodelling and construction of the distribution network of the Kotri Barrage by 1963 ; and the distribution system of the Taunsa Barrage before 1965. Provision has been made for small irrigation schemes all over the Province. Two thousand percolation wells and 700 tubewells will be provided through the Department of Agriculture. Some 1,000 miles of open drains are to be dug. A salinity control and reclamation project envisaging the drilling of 2,200 tubewells and designed to serve an area of 1·6 million acres in the Rechna and Chaj Doab will be completed by 1961. Similar programmes will be launched in other waterlogged areas as found feasible. Four schemes of flood control under execution will be completed, and several more will be undertaken.

26. Under the power programme, an additional capacity of 352,000 kw will be installed in public utilities, including 135,000 kw at Karachi. The West Pakistan high tension grid will be completed, interconnecting Multan, Warsak, and smaller power stations which, along with the secondary transmission and distribution system, will serve the northern and central zones of West Pakistan. New thermal stations will be constructed at Sukkur and Quetta, and separate grids with distribution facilities will be provided around Hyderabad, Sukkur, and Quetta to supply power to neighbouring towns.

27. *Industry.*—Industries such as textiles, sugar, chemicals, and cement have been established on a sound foundation. The contribution of manufacturing industry is about 16 per cent of the total domestic income of West Pakistan, and is expected to rise appreciably during the Second Plan period. The Plan provides for an increase in the production of sugar and other food products ; fertilizers and cement ; and basic chemicals and other producer goods. A steel plant will be set up with an initial capacity of 250,000 tons per annum to meet part of the local requirements. Petro-chemical industries based on natural gas will be developed. Maximum use will be made of private enterprise ; and public investment in manufacturing industries will be kept to the minimum consistent with the achievement of national goals. Though some relaxation has been made in this regard for East Pakistan to meet the existing difficulty of finding private capital in that Province, almost complete reliance has been placed on private initiative for the implementation of the industrial programme of West Pakistan. Public investment in this region is confined to fertilizers, and in part to petro-chemicals, steel, and cement. Food manufacturing, textiles, metal products, and other industries have been left to private development. It is proposed to develop a number of industrial trading estates in West Pakistan in order to facilitate establishment of small and medium scale industries. Industries are at present concentrated in and around Karachi, and in a few other centres only. The Plan seeks to promote industries in those areas which are comparatively backward but give promise for industrialization ; the development of industrial estates in such areas is considered essential. A Small Industries Corporation will coordinate the development of small industries throughout West Pakistan, including the Special and Frontier Areas.

28. *Fuels and minerals.*—The search for oil and gas will continue, the focus in the case of oil shifting from the central and lower Indus Basin to the Dera Ismail Khan region, and to the Pothwar area where oil is being currently produced. The utilization of natural gas from Sui is expected to increase from 22,500 million cubic feet in 1959 to 92,500 million cubic feet in 1965. Gas pipelines will be extended northward and eastward from Multan to Lahore, Daudkhel, Rawalpindi and Peshawar ; and local distributions arranged in Multan, Lyallpur, Lahore, Rawalpindi and other principal towns. Coal output is to be doubled from 723,000 tons in 1959 to 1·5 million tons in 1965. The output of chromite will rise to 35,000 tons. Mining of antimony, bauxite, and manganese will receive attention. Growing requirements of fire clay, gypsum, glass sands, limestone, marble and sulphur will be met by expanding production from existing deposits as well as exploring new sources.

29. *Transport and communications.*—Railways and roads constitute the backbone of transport in West Pakistan for which heavy investment for maintenance and expansion is required. Pending the results of the railway traffic survey now under way, no substantial expansion of route mileage is proposed. Provision is made for improvement of line capacity and terminal facilities ; the rehabilitation of track and rolling stock ; and structural and

engineering works. The programme also includes construction of a diesel electric locomotive workshop at Rawalpindi ; remodelling of the bridge workshop at Jhelum ; expansion of the signals workshop at Lahore and locomotive, carriage, and electrical shops at Moghalpura and Hyderabad ; and an apprentice training centre at Moghalpura. To serve the vast land mass of the Province and to open up the less accessible areas, about 2,875* miles of new roads are to be built. Bridges are to be constructed over the Indus near Thatta, the Sutlej near Bahawalpur, the Ravi near Lahore, and the Jhelum near Jhelum city. Some 900 vehicles are to be replaced and 500 buses added to the fleet of the West Pakistan Road Transport Board; and 700 additional buses will be acquired for the Karachi Road Transport Corporation. In the private sector, provision is made for 3,000 buses and 10,600 trucks for replacement and additions. Air services are to be expanded. Runways and other facilities at Multan, Mianwali, Lyallpur, and Sukkur will be improved. Some airports will be provided with facilities to handle jet traffic. Seven hundred and eighty new post offices, 180 new telegraph offices, and 32,000 new telephones will be provided.

30. *Housing and settlements.*—A college of architecture and town planning, four building trade schools, and one building research laboratory will be established. Pilot projects for village planning will be undertaken. Town plans will be prepared for at least 12 large cities. Schemes for provision of water supply to selected urban and rural areas will be taken in hand. Residential plots will be developed mainly for displaced shelterless persons. Industrial housing corporations will be sponsored to provide residential accommodation for industrial workers in selected areas. The completion of the Karachi water supply and sewerage scheme will be accelerated.

31. *Education and training.*—The educational programme provides for the opening of 15,200 new primary schools. School enrolment will rise by 1·24 million, an increase from 36 to 56 per cent in the 6-11 age-group attending schools. Two hundred middle schools will be provided with additional buildings and equipment. Twenty pilot secondary schools are to be established, and hostel facilities increased. Additional requirements will be met by upgrading 600 primary schools to middle schools and 103 middle schools to high schools ; and by opening 160 high schools, including girls' high schools. Existing teacher training institutions will be modernized, and two new training colleges and 15 primary training institutes will be opened. Three new universities will be established, including two technical universities for agriculture and engineering.

32. *Health.*—Programmes for eradication of malaria, small-pox and other common diseases, and for improvement of public health and nutritional standards generally are included in the Plan. Some 150 rural health centres will be established and a number of rural and district hospitals set up or expanded. The King Edward, Nishtar, and Liaquat Medical Colleges and the Dental College at Lahore will be further improved. More doctors,

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*Includes Special and Frontier Areas.

nurses, and health visitors will be trained. Two training institutes for health technicians and one for lady health visitors will be established, and the capacity of the existing nursing schools will be expanded. The number of doctors will increase by about 1,900 and of hospital beds by about 4,650. To support the family planning programme, health clinics will be set up in all hospitals, dispensaries, and medical centres.

33. *Social service.*—The social service programme includes the training of 525 additional social workers, and the opening of 58 urban community development projects and 28 medical social work projects. A number of recreational centres for children, youth hostels, and pilot projects for the socially and physically handicapped will be set up. About 175 voluntary social work agencies will be assisted by grants-in-aid of public funds for various social service activities.

Development programme for Special and Frontier Areas in West Pakistan

34. Within West Pakistan there are backward areas, which present problems of development different from those of East Pakistan. The term Special and Frontier Areas, as used in the Plan, comprises the Kalat and Quetta Divisions excluding Quetta; Malakand, Mohmand, Khyber, Kurram, North Waziristan and South Waziristan Agencies; the former states of Chitral, Dir, Swat and Amb; and the areas which are at present the responsibility of the Ministry of Kashmir Affairs. These areas are relatively less developed than the rest of the Province. Mobility of capital and labour between them and other parts of the Province, despite contiguity, is small. In these areas, tribal traditions and group discipline dominate the outlook and ways of life; transport and communications facilities are inadequate; educational and social services are meagre; and production and employment opportunities are limited. The inhabitants of these areas, on the other hand, are sturdy, exceptionally shrewd, and capable of taking quick advantage of profferred opportunities for advancement. But they have a great leeway to make up.

35. The Plan deals with the problem of the Special and Frontier Areas in several ways. First, a certain level of welfare services, similar in nature to those of the rest of the Province, is to be provided in these areas. Hospitals and schools are primary needs; and these will be met as far as possible. To promote higher education, and the education of girls in particular, generous scholarships will be granted. Second, transport and communication facilities are to be extended to these areas in order to establish better contact with the other regions and increase the mobility of goods, services, labour, and capital. Third, opportunities for directly productive activities are to be increased through the exploitation of minerals and other natural resources, improvement of agriculture, establishment of industries, and in other ways.

36. An integrated programme has been provided in the Plan for the backward areas. An estimate of the cost of development schemes which will benefit these areas is as follows :

	(Million Rupees)
Agriculture	123
Water and power	125
Industry, fuels, and minerals	120
Transport and communications	90
Education and training	20
Health, social service, housing and others	26
Total ...	504

37. The schemes in the agriculture sector aim at increasing crop yields as well as the area under cultivation. They include seed multiplication farms, distribution of fertilizers, plant protection, land reclamation, and extension services. There are schemes also for sheep breeding, cattle raising, mule and pony breeding, poultry farming, sheep rearing, disease control, and animal feed. Forestry schemes include scientific management of forests, afforestation of new areas, and forest utilisation. Small irrigation schemes are to be carried out in the Agencies. In addition, these areas will benefit from large irrigation projects such as the Warsak and Bara canals. There are some important electricity schemes, such as the supply of power to Chitral, Miranshah and 27 villages in Mohmand and Khyber Agencies ; and for tubewells in Malakand Agency. The programme for the development of small industries includes schemes for sericulture, wool-shearing, metal works, wood-carving, cabinet making, stone work, and multipurpose handicraft centres for women. There are good prospects for development of minerals in these areas, since the mineral deposits of West Pakistan are largely concentrated there. Schemes have been formulated to exploit the known deposits, and to explore other possibilities. The coal programme is centred around Quetta and Sor Range area. A thermal power station is to be built at Quetta to supply electricity to the mines in the Sor Range, and two major roads will open up this area. A coal carbonization plant is proposed to be set up near Sibi for converting 100,000 tons of fine coal per year into coke, briquettes, and coal distillation products. Chromite production in the Hindubagh area in Quetta division is to be substantially expanded. The exploitation of high grade antimony in Chitral is to be facilitated by improving transport facilities over the Lowari Pass. Manganese deposits in the Las Bela region of the Kalat division will be investigated. There are high grade iron ore deposits near Chagai in Baluchistan and at Damma Nissar in Chitral. The feasibility of exploiting these deposits for establishing an indigenous steel industry will be the subject of a major study. Other schemes include surveys on possibilities for exploration and development of copper and chromite (North Waziristan) ; nickel ore (Datta Khel, north Waziristan) ; asbestos (South Waziristan) ; oil (Sherani area, D. I. Khan) ; lead, silver, and mica (Chitral) and china clay (North Waziristan).

38. There is also a fairly extensive road construction programme which aims at opening up the more inaccessible parts of these areas: roads, and bridges in Malakand, Chitral, Khyber, Mohmand, Kurram, South Waziristan, and the Kohat Frontier Range. Of special importance is the scheme for feeder air services which will link up isolated places like Jiwani (Baluchistan), Turbat (Kalat), Gilgit, and Skardu with the regular air routes of the Province.

Public sector regional allocations

39. The allocations proposed in the Plan for the programmes to be carried out in different sectors by the East Pakistan Government, the West Pakistan Government, and the Central Government are given in Table 1. The table also gives estimates of actual expenditure in the First Plan period by each of the three Governments.

TABLE 1

Allocation of public resources under the Second Plan as compared with estimated implementation of the first Plan, by source of financing

(Million Rupees)

Sector	East Pakistan		West Pakistan		Central Government		Total	
	First Plan implementation	Second Plan allocation	First Plan implementation	Second Plan allocation	First Plan implementation	Second Plan allocation	First Plan implementation	Second Plan allocation
Agriculture ...	220	547	350	681	280	432	850	1,660
Village AID ...		235		182		63		480
Water and power ...	350	1,519	1,060	1,528	360	93	1,770	3,140
Industry ...	20	185	20	115	770	870	810	1,170
Fuels and minerals ...		...		...		300		300
Transport and communications ...	150	315	170	257	1,130	1,528	1,450	2,100
Housing and settlements ...	130	528	160	264	450	523	740	1,315
Education and training	71	358	82	362	82	170	235	890
Health ...	39	151	39	129	7	70	85	350
Manpower and social service ...	3	29	3	29	4	37	10	95
Total ...	983	3,867	1,884	3,547	3,083	4,086	5,950	11,500

Note: First Plan implementation figures are adjusted to Second Plan definition of development expenditure.

40. It will be seen that the programmes to be carried out by the East Pakistan authorities under the Second Plan are almost four times as large as the estimated actual expenditure under the First Plan. It will require a major effort on the part of the East Pakistan authorities to implement a programme of this size. The programmes to be carried out by the West Pakistan authorities are almost twice as large as estimated expenditure during

the First Plan period and will, therefore, impose less strain on the resources of that Province. The bulk of the programme to be carried out by the Central Government is for the benefit of the two Provinces and a relatively smaller part is for the benefit of Karachi and the Capitals at Islamabad and Dacca. An estimate of the planned expenditure by the Central and Provincial authorities in the Provinces of East and West Pakistan and in Karachi and other Centrally administered areas is as shown in Table 2.

TABLE 2

Allocation of public resources by geographical regions

(Million Rupees)

Sector	East Pakistan			West Pakistan			Karachi and other Centrally administered areas	Total Pakistan
	Provincial	Central	Total	Provincial	Central	Total		
Agriculture ...	547	194	741	681	161	842	77	1,660
Village AID ...	235	24	259	182	22	204	17	480
Water and power ...	1,519	...	1,519	1,528	...	1,528	93	3,140
Industry	185	514	699	115	239	354	117	1,170
Fuels and minerals	...	87	87	...	202	202	11	300
Transport and communications ...	315	502	817	257	858	1,115	168	2,100
Housing and settlements	528	32	560	264	4	268	487	1,315
Education and training ...	358	42	400	362	54	416	74	890
Health	151	7	158	129	2	131	61	350
Manpower and social service	29	15	44	29	11	40	11	95
Total	3,867	1,417	5,284	3,547	1,553	5,100	1,116	11,500

While the allocations for the water, power and education programmes are about equal for the two Provinces the programmes for industry, housing and settlements, health and social service and Village Aid for East Pakistan are larger than those for West Pakistan. The transport and communications programme for West Pakistan is larger than that for East Pakistan owing to the much larger area and heavier transport requirements of West Pakistan. The programmes for agriculture and fuels and minerals are also larger for West Pakistan. Taking the programme as a whole the allocation of resources to East Pakistan is larger than that for West Pakistan, being Rs. 5,284 million for East Pakistan and Rs. 5,100 million for West Pakistan.

41. It is not possible to give a precise breakdown of anticipated private investment on a geographical basis. However, in view of the policies recommended by the Plan for encouraging private investment in East Pakistan,

such investment in the Province should be of substantial proportions. It is estimated that total development expenditure in the public and private sectors in East Pakistan will be about Rs. 8,000 million, compared with an estimated actual expenditure of about Rs. 3,000 million during the First Plan period. This increase in development expenditure for East Pakistan should enable the Province to make significant advances.

42. A net transfer of resources from West Pakistan and abroad will be required to implement the development programme of East Pakistan. It is estimated that a net transfer of resources took place under the First Plan when the development expenditure in East Pakistan was much less than what is being proposed during the Second Plan period. In the past, East Pakistan has been transferring a part of its foreign exchange earnings to West Pakistan. This has been partly offset by the surplus that West Pakistan has been having in its trade with East Pakistan. There has also been a net transfer of such services from West to East Pakistan as banking and insurance, technical and managerial skills. West Pakistan has also been contributing a higher percentage to the expenditure of the Central Government on such national services as defence and general administration, which implies the export of invisible services from West to East Pakistan. The net transfer of resources from West to East Pakistan has been substantial in the First Plan period, due partly to higher external assistance utilized in West Pakistan. In the Second Plan period it is expected to be higher.

43. The required transfer of resources can be arranged in a number of ways. The Plan provides that the Central Government directly undertake development expenditure of about Rs. 1,400 million in East Pakistan during the Plan period. Since revenue and capital receipts of the Centre will be obtained mainly from West Pakistan, this will mean that a part of the resources raised from West Pakistan will be used for the development of East Pakistan.

44. The problem of transferring private savings from West to East Pakistan will be more difficult. It should be possible, however, to encourage private capital to go into East Pakistan through such measures as tax incentives, creation of a more favourable climate for investment in East Pakistan including improvements in labour-management relations, identification of investment opportunities through the current industrial survey of East Pakistan, creation of economic and social overheads, and the development of banking and credit institutions.

45. Execution of development programmes in East Pakistan will raise special problems. Besides strengthening the administration in East Pakistan and developing technical skills, it may also be necessary to transfer some administrative and technical personnel from West Pakistan to East Pakistan. If the development effort in East Pakistan seriously lags behind the provisions made in the Plan, the Centre may have to take up directly the execution of some of the important development projects in that Province.

46. Some of the important targets to be achieved in East Pakistan, and in West Pakistan including Karachi are shown in Table 3.

TABLE 3

Physical targets by regions

	Unit	1959-60			1964-65			Percentage increase		
		East Pakistan	West Pakistan	Total	East Pakistan	West Pakistan	Total	East Pakistan	West Pakistan	Total
1	2	3	4	5	6	7	8	9	10	11
Agriculture :										
Wheat	Thousand tons	24	3,679	3,703	129	4,200	4,329	438	14	17
Rice (cleaned)	"	7,335	1,006	8,341	8,605	1,559	10,164	17	55	22
Maize	"	negligible	468	470	negligible	679	682	negligible	45	45
Jowar, bajra	"	"	527	528	"	577	578	—	9	9
Barley	"	"	133	147	"	154	168	—	16	14
Total foodgrains ...	"	7,376	5,813	13,189	8,752	7,169	15,921	19	23	21
Jute	Thousand bales	6,000	—	6,000	7,300	—	7,300	22	—	22
Cotton	"	negligible	1,650	1,666	negligible	2,275	2,292	negligible	38	38
Tea	Million lbs.	54	—	54	64	—	64	18	—	18
Tobacco	"	93·0	130·0	223·0	106·0	148·7	254·7	14	14	14
Gram and other pulses	Thousand tons	266	654	920	275	750	1,025	3	15	11
Fruits and vegetables	"	3,016	1,342	4,358	3,295	1,603	4,898	9	19	12
Oilseeds (including cotton seeds)	"	122	813	935	177	1,053	1,230	45	30	32

TABLE 3—*contd.*

Physical targets by regions—contd.

	Unit	1959-60			1964-65			Percentage increase		
		East Pakistan	West Pakistan	Total	East Pakistan	West Pakistan	Total	East Pakistan	West Pakistan	Total
1	2	3	4	5	6	7	8	9	10	11
Sugarcane	Thousand tons	3,840	11,590	15,430	5,460	15,340	20,800	42	32	35
Fish	,,	223	67	290	260	100	360	17	49	24
Timber	,,	270	46	316	348	47	395	29	2	25
Village AID :										
Development areas	Number	81	95	176	225	210	435	178	121	147
Numbers of Village AID workers	,,	1,750	3,250	5,000	—	—	16,000	—	—	220
Water and power :										
New irrigated area (during previous 5 years) ...	Thousand acres	58	1,024	1,082	230	2,215	2,445	—	—	—
Improved area (during previous 5 years) ...	,,	562	2,008	2,570	1,127	5,985	7,112		—	—
Installed power generating capacity (net) ...	Thousand kw.	175	731	906	298	974	1,272	70	33	40
Transmission and distribution lines (11 Kv and above)	Circuit miles	600	4,400	5,000	1,500	13,500	15,000	150	207	200
Industry :										
Cotton yarn	Million lbs.	62	318	380	130	390	520	110	23	36
Jute goods	Thousand tons	250	—	250	380	—	380	52	—	52
White sugar	,,	—	—	150	140	160	300	—	—	100
Edible oils	,,	50	100	150	90	160	250	80	60	67
Vegetable ghee	,,	7	15	22	15	35	50	114	134	127
Tea	Million lbs.	54	—	54	64	—	64	18	—	18
Cigarettes	Millions	2,000	7,000	9,000	5,000	10,000	15,000	150	43	67
Fertilisers (amonium sulphate equivalent) ...	Thousand tons	—	42	42	250	300	550	—	614	1,210
Soda ash	,,	—	25	25	—	74	74	—	196	196

Cement	Thousand tons	—	—	1,050	270	2,730	3,000	—	—	186
Steel	”	—	—	—	100	250	350	—	—	—
Paper and board	”	—	—	53	—	—	105	—	—	98
Fuels and minerals :										
Natural gas	Million cubic feet	—	22,500	22,500	7,500	92,500	100,000	—	311	344
Coal	Thousand tons	—	723	723	—	1,500	1,500	—	107	107
Transport :										
Railway rolling stock (during previous 5 years) :										
Locomotives	Number	26	109	135	50	112	162	—	—	—
Wagons	”	294	6,959	7,253	3,072	4,336	7,408	—	—	—
Coaches and other	”	146	482	628	262	527	789	—	—	—
High type roads completed	Miles	1,425	9,350	10,775	2,295	12,225	14,520	61	31	35
Buses in operation	Number	1,600	7,400	9,000	2,200	9,800	12,000	38	32	33
Trucks in operation	”	2,650	13,350	16,000	4,000	20,000	24,000	51	50	50
Route mileage, I. W. T.	Miles	2,800	—	2,800	4,000	—	4,000	43	—	43
Handling capacity of ports	Million tons	3·0	4·5	7·5	3·5	5·8	9·3	17	29	24
Airports, airfields, airstrips	Numbers	4	5	9	9	13	22	125	160	144
Communications :										
Post offices	Number	4,150	5,700	9,850	4,670	6,480	11,150	12	13	13
Telegraph offices	”	400	640	1,040	520	820	1,340	30	28	29
Telephones	”	12,500	62,500	75,000	26,200	94,500	1,20,700	110	51	60
Broadcasting transmitters	”	5	14	19	10	19	29	100	36	53

TABLE 3—concld.

Physical targets by regions—concld.

1	Unit 2	1959-60 East Pakistan 3	 West Pakistan 4	 Total 5	1964-65 East Pakistan 6	 West Pakistan 7	 Total 8	Percentage increase East Pakistan 9	 West Pakistan 10	 Total 11
Education and training :										
Number of primary schools	Thousands	26	18	44	26	33	59	—	83	33
Children attending primary schools (age group 6-11)	,,	2,924	1,782	4,706	4,224	3,022	7,246	44	70	54
Children attending secondary schools (age group 11-16)	,,	437	662	1,099	637	892	1,529	46	35	39
School-going children as percentage of children in										
Age group 6-11	Per cent	48	36	42	63	56	60	—	—	—
Age group 11-16	,,	9	17	12	12	20	16	—	—	—
Primary teacher training institutes	Number	35	40	75	55	55	110	57	38	47
Teacher training colleges	,,	9	14	23	12	16	28	33	14	22
Engineering colleges	,,	1	3	4	2	4	6	100	33	50
Students passing out from engineering colleges ...	,,	100	300	400	200	500	700	100	67	75
Students passing out from technical schools (diploma level) ...	,,	180	320	500	600	650	1,250	233	103	150
Universities	,,	2	4	6	5	7	12	150	75	100
Health :										
Doctors	,,	5,000	4,200	9,200	6,900	6,100	13,000	38	45	41
Nurses	,,	320	1,680	2,000	1,000	2,500	3,500	213	48	75
Health visitors	,,	67	433	500	—	—	2000	—	—	300
Hospital beds	,,	7,650	20,350	28,000	11,000	25,000	36,000	44	23	29
Tuberculosis clinics	,,	4	28	32	34	48	82	750	71	156
School health clinics	,,	7	12	19	19	37	56	171	208	195
Rural health centres	,,	—	—	—	150	150	300	—	—	—
Nurses' training institutes	,,	5	13	18	8	14	22	60	8	22
Social services :										
Social workers	,,	100	250	350	675	775	1,450	575	210	314
Urban community development projects ...	,,	12	13	25	52	71	123	333	446	392
Medical social work projects	,,	—	5	5	19	33	52	—	560	940
Voluntary agencies to receive grants-in-aid ...	,,	80	120	200	125	175	300	56	46	50

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